Computer Weekly
Thursday, April 22, 1982
Telephone: 0902-

NAS mainframes ready for launch

by Boris Sedacca

THE first mainframes to be designed by plug-compatible manufacturer National Advanced Systems will be launched tomorrow.

This is the first major processor announcement to come from NAS since its formation out of the ashes of Itel's computer leasing interests. Itel sold mid-range mainframes in the IBM 4300 class made by NAS's parent company, National Semiconductor.

The two new entry-level mainframes corresponding in performance to the IBM 4341 range will be sold throughout Europe. According to NAS the new machines, called AS 6100, will be the first in their power range to use emitter-coupled logic circuitry.

The AS 6100 will supersede the earlier AS 5 and AS 5000 mainframes originally marketed by Itel. NAS is also expected to announce a replacement for the AS 7000 range targeted at IBM 3033 models and based on the Hitachi M180H mainframe, although it is not clear whether the new machine will be made by Hitachi or NatSemi.

BASF signed the first deal with Hitachi for its new technology processor, the M240H, operating at 1.8 million instructions per second (mips) and filling a gap between the top end of IBM's 4300 series, the 4341 Group 2, and the bottom end 3033 Model S. The M240H is expected to replace the M180H eventually.

Profits up at IBM

by Boris Sedacca

US stock analysts were last week surprised by better than expected first quarter profits by IBM.

First quarter profits grew by 5.2% over the same period last year to $768 million or $1.30 a share, while turnover rose 9.4% to $7.07 billion.

According to IBM-watcher Pat Sullivan of Advanced Computer Techniques, most analysts were expecting profits to be flat or slightly lower than the first quarter of 1981. Pessimism was caused by the recession and foreign currency translation.

Commenting on IBM's waning enthusiasm for liquid-helium cooled Josephson Junction technology for supercomputer manufacture, Sullivan said: "I attended a conference of analysts last week, and IBM gave the impression that it was no longer so excited about Josephson Junction."

Memorex rescue

by Kevan Pearson

MEMOREX UK is to handle servicing and maintenance for existing Magnuson users in the UK, but there is no word on a full distributorship following the collapse of Magnuson UK just before Easter.

Memorex initiated talks leading to the deal within 72 hours of Magnuson UK's collapse, according to Mike Kitching, managing director of Memorex UK.

In the US, Magnuson has undergone drastic surgery to keep going. It has appointed Chuck Straugh, a former vice-president at Memorex in the US, as president. It has cut back on its expansion plans and cut its overheads. This follows a restructuring of its debt earlier in the month.

If it survives, it will need to think seriously about finding a new UK distributor.

REYNOLDS . . . *Emphasis on mobility.*

Software exports win Queen's Awards

by Philip Hunter

TWO UK software companies have won Queen's Industry Awards a second year running.

BIS Software has again won the Export Achievement Award, for success in selling its Midas banking package into about 40 countries. And Micro Focus, which last year was the first software company to win the Queen's Technology Award, for developing CIS Cobol on microcomputers, has gained the Export Award for selling CIS and other products based on it.

Micro Focus more than doubled its overseas turnover in the year ending September 1981, showing particularly large growth in the US. The US is responsible for about half its overall turnover of £1 million, and Japan is responsible for about 10%.

It is estimated that sales already made in Japan will eventually bring in royalties of over £500,000, and it is there that chairman Brian Reynolds expects to make the biggest growth this year.

Micro Focus' success is built on the choice of CIS as the first micro Cobol for the Apple, but Reynolds puts greater emphasis on the company's mobility.

BIS Software, which nearly doubled its turnover in the year ending June 1981, also increased to 70% the contribution made by exports to total sales. Like Micro Focus, it has made big gains in Japan, having sold Midas to five Japanese banks for their overseas branches.

It has also sold Midas to banks from other countries for their Japanese branches, but it has not sold to banks in their home countries. Chairman Roger Graham explains that this is because the parent systems of banks are too big for Midas.

"Midas is based on IBM System 38 and Series One computers," says Graham. "With 750,000 lines of code, it is one of the largest minicomputer programs ever written."

Sord expands in Dublin

by Kevin Cahill

JAPANESE microcomputer maker Sord will sign a deal in Dublin later this week to buy a seven-acre site for a new factory.

Rapid expansion in European demand for the company's product has made it necessary for Sord to move from existing premises, which are only two years old. Sord's president Takayoshi Shiina said that he expects to build a 40,000 square-foot facility.

Eventual employment will be about 400 people, he said. The factory will be completed within three to four months once legal formalities are over.

Shiina said that the full range of Sord products would be built, including the new 16-bit micro the company is launching.

China may be first customer for System X

by Donald Kennett

CHINA will be the first country to buy System X, the UK's digital telephone switching and transmission system, if a deal in the offing goes through.

Standard Telephones & Cables, the UK subsidiary of ITT which is acting as lead contractor for this bid, says it is "quietly confident" of winning the contract. The results are expected in a few weeks.

The contract is for a small local exchange, to be built like a large local exchange for training and experimental purposes. It is to be installed in Guang Dong province, centre of most of the country's industry.

China is an attractive market because it has little telephone equipment installed, and the winner of this contract should be in a good position to do a great deal of future business.

The partners in British Telecommunications Systems, the consortium which was set up to export System X, have assigned themselves different territories in which to be lead contractor to take advantage of their trading experience.

STC has been made lead contractor for Guang Dong province, and hopes to be made lead contractor for the whole of China. It has traded there for many years, selling equipment including [illegible] craft radio and navigation [illegible]. The other manufacturing [illegible] are GEC and Plessey.

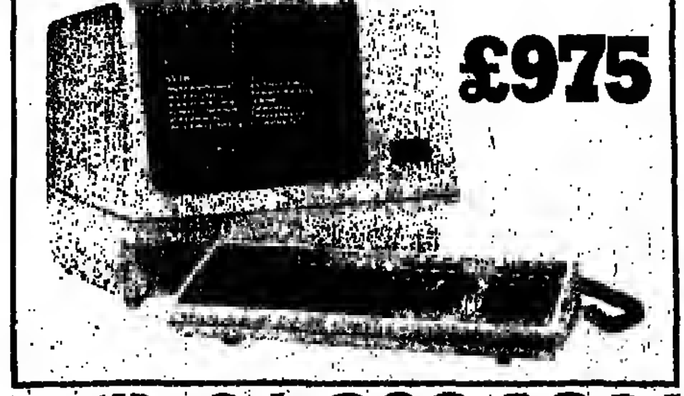
STC is preparing bids [illegible] Western Europe, believed [illegible] Portugal, and Africa, believed [illegible] include Zimbabwe. GEC [illegible] month submitted a bid [illegible] adjudication of which is expected to take at least six months. [illegible] is believed to be preparing [illegible] for Columbia.

● Kevin Cahill adds: [illegible] People's Republic of China [illegible] expected to invite tenders [illegible] £15 million worth of [illegible] equipment. Payment [illegible] machines, which are intended [illegible] use in 14 universities, will [illegible] via a $200 million education [illegible] made to China by the World [illegible] last year.

The tender is expected to [illegible] ate fierce controversy between [illegible] val Japanese and American [illegible] ders.

Both Fujitsu and Hitachi [illegible] machines on order from [illegible] since 1980 which they cannot [illegible] liver because of American [illegible] rules applying to so-called [illegible] materials.

Both companies have [illegible] plained bitterly, and there [illegible] been widespread allegations [illegible] fair dealings by the US [illegible] Department.



Printed in Great Britain by QB Limited, Sheepen Place, Colchester, and published by IPG Electrical-Electronic Press Ltd, Quadrant House, Quadrant, Sutton, Surrey SM2 5AS.

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Computer Weekly
Thursday, April 29, 1982 Number 806 30p

Dispute halts Giro DP

by Kevin Cahill

STRIKING computer maintenance engineers halted the National Girobank's data processing last week in a dispute which could lead to a complete shutdown of the bank's cheque processing centre at Bootle.

The engineers maintain optical character recognition equipment used by the bank to process cheques and other transactions at the rate of over three million documents a day.

The equipment is supplied by three companies, Recognition Equipment, NCR and Lundi Farrington, which are the sole suppliers of many of the spare parts.

Until a few weeks ago all three companies had contracts with the Post Office for maintenance of the equipment for up to 10 years. But following an open tender contract the overall maintenance was awarded to a new company, DPCE of Wokingham.

Lundi engineers say they were told by Post Office staff that their company had lost the contract before their own management had an opportunity to speak to them.

In addition, the Lundi management were not consulted about the arrangements for the transfer of over £100,000 worth of spares to DPCE.

A spokesman for the Post Office acknowledged that there was a dispute with the engineers, but said that all were working normally today.

The Post Office also admitted that it had had a letter from Lundi's solicitors, but rebutted the allegations in the letter. These are understood to relate to actions by DPCE in relation to the proprietary ownership rights Lundi has to its special equipment and expertise.

Lundi is thought to be angry at the way in which the transfer of both engineers and equipment is being handled.

Keith Meadows, managing director of DPCE, said: "We have a reasonable relationship with Lundi Farrington which we would like to maintain."

Warren Palmer, managing director of Recognition Equipment, one of the other companies involved, said that his company had an excellent relationship with the Post Office and was looking forward to maintaining that through to the end of the contract in September. At that time, he said, he would be redeploying his engineers and spares elsewhere.

The management of Lundi was in Germany but an OCR engineer at a non-Post Office site said that he did not see how DPCE could run the equipment without the Lundi spares and manuals.

SINCLAIR . . . *boosting an already impressive overseas sales record.*

Sinclair strikes back at US

by Boris Sedacca

BRITAIN'S dismal export performance against US microcomputer companies could be in for a sharp improvement. Computer pioneer, Clive Sinclair plans to boost his already impressive overseas sales record with a full-frontal attack on US company Commodore.

With a new £125 colour machine he will compete directly with the Vic colour computer.

The ZX Spectrum comes with 16 Kbytes of user memory, but there will also be a 48K version which will sell for £175. Features include eight colour, high resolution graphics, upper and lower case characters, a sound generator, and a superset of Basic as used on the earlier ZX81.

Sinclair is currently selling about 20,000 ZX81 microcomputers each month into the US market at $150 each, but expects volumes to shoot up when he lowers the price to $100.

Sinclair has also announced a £50 "Microdrive" providing 100 Kbytes of floppy disc storage to be launched later this year, as well as a £20 serial interface with local area networking facilities.

Meanwhile, Commodore last week announced a new Vic 10 colour computer at the Hanover Fair with high resolution graphics and music synthesis.

British company Acorn Computers has also announced a colour computer which can connect to US domestic television sets using the NTSC signal as well as the European PAL system. This will sell for £120 to £150 but delivery will not be until the end of the year.

Sinclair plans to offer a Teletext reception capability and eventually viewdata too. He added that he hoped to produce 20,000 of the new machines a month initially, but that this would rise to meet a first-year sales target of 300,000 to 400,000.

According to Sinclair, between 60% and 70% of the machines produced by the company are exported. The biggest market is in the US where Sinclair machines are sold directly by mail order and by Timex in retail stores.

NEWS BRIEF

Magnuson's debts are £1.35m

RECEIVERS at plug-compatible manufacturer Magnuson UK have reported outstanding debts of £1.35 million against assets of £834,000. The biggest creditors are Storage Technology and ITT which together account for over £500,000 of outstanding debts, from a total of 66 creditors, of which 32 have claims for under £500.

2nd BACS centre

A SECOND data centre has been opened by BACS, the Bankers' Automated Clearing Service, which last year handled 18% of the transactions of the British banking system. The centre, at Dunstable in Bedfordshire, will ultimately house a number of ICL 2966 mainframes and form a duplicate site to the current BACS installation at Edgware.

Queen's Awards

COMPANIES in the computer industry took eight of this year's 91 Queen's Industry Awards, including six for export achievement. The [illegible] technological achievement went to Laser Scan Laboratories and Racal-Redac. Two of the Export Achievement Awards went to Racal-Decca Navigator and Racal Security. The other four went to BIS Software, Micro Focus, Micro Image Technology and Control Data's magnetic media manufacturing division.

Bank order

THE Midland bank has ordered £8 million worth of Nixdorf 8864 distributed banking systems for installation in 450 of its branches nationwide. Each branch will have between one and six workstations.

IBM backs Gateway

by Donald Kennett

IBM has given further respectability to viewdata by announcing a set of products that will interface its larger machines to Prestel's Gateway.

The software will enable viewdata terminals to access 4300 and larger machines via the Prestel network.

Systems Programmers, which itself launched a gateway software product for IBM machines earlier this month, said it would benefit from the strengthening of the market that would result from IBM's announcement. SPL command and control division managing director David Lamb said: "Our system runs on Tandem and DEC machines as well and will run on other minis too before the end of the year.

ICL plans to announce a gateway for its Bulletin viewdata system "shortly".

IBM's gateway will be available in three parts in July, costing a total of about £50,000 (including monthly charges which are waived after a year) if all three parts are taken.

David Lamb of SPL.

Mainframe comeback

by Philip Hunter

AFTER an absence of several years, US manufacturer Control Data is once again planning a move into the large commercial mainframe market. It will shortly announce a machine that it says will compete directly with IBM's 3081.

Control Data stopped being a serious mainframe competitor to IBM some years ago, concentrating on its Cyber range of supercomputers at the top end, and on minicomputers and plug-compatible peripherals.

"This is our most important systems announcement yet," says Control Data corporate manager Bill Schaffer. "With a new operating system to enable microcomputers such as the Apple II to act as terminals, it will greatly broaden our market."

The new range, called the Cyber 170 Series 800, contains five models, all of which are compatible with the present 700 Series. Prices range from $370,000 for the 825 to $4.5 million for a top-of-the range 875 with twin processors.

The Control Data announcement represents a swift reply to the supercomputer announced by Cray last week, although Control Data does not think its new machines will compete directly with the new Cray.

'Viewdata' MP

CONSERVATIVE MP John Butcher has been appointed Junior Under Secretary of State for Industry, with responsibility for viewdata and teletext. Butcher replaces John Wakeham who has moved over to the Treasury as Minister of State.

INSIDE THIS WEEK'S ISSUE

Storm brewing over govt data protection paper

by Kevan Pearson

THERE is much concern over what is widely viewed as the inadequacy of the data protection proposals outlined in a White Paper, published before Easter. The interested parties have now had a chance to digest the paper and most of them are left feeling distinctly queasy about the government's failure to grasp the essential issues.

The most widely expressed doubt concerns the decision to give security forces unrestricted access to all computer databanks in the UK. The police and MI5 will not only be able to operate their computer systems without any interference by the data protection authority, they will also be allowed, as far as is technically possible, to use the information contained on any other registered system, again without interference.

One leading computer industry figure closely associated with data protection described this provision as "white fire through the rights of the individual".

Patricia Hewitt, general secretary of the National Council for Civil Liberties, said: "It is one of the most glaring loopholes in a white paper full of loopholes."

The government, in the White Paper, says that the exemptions of registration will be kept to a minimum. It then goes on to give security forces unfettered access to all computer banks, and to say that where such access takes place neither party will need to register this with the registrar. "To register them would tend to defeat the purpose for which they are made," it says.

When questioned in the House of Commons, Home Office Minister of State Timothy Raison said last week: "It is not the practice to comment on this (security matters) in the House."

MPs and industry figures are calling for a security-cleared member to be appointed to the registrar's staff, who would have responsibility for overseeing the use of security systems and their access to and use of the information contained in other databanks.

Main criticisms of the government's data protection White Paper:

1. Exemption from registration of the security forces and their unhindered access to the registered databanks of both public and private organisations.
2. Lack of independence of the registrar, who is to be appointed by the Crown. Concern also expressed about the independence of the appeals tribunal.
3. The absence in the White Paper of any legally enforceable codes of practice on the use and implementation of computerised information systems.
4. The absence of any mention of manual systems in the proposed legislation.
5. The reliance on civil rather than criminal remedies where misuse is proven.
6. The possibility that the legislation will not meet the Council of Europe's Convention on Data Protection in either its content or the time scales for its implementation.

HEWITT . . . "White Paper full of loopholes."

Pentagon rejects X25

by Howard Karten

A SNAG has developed in the US government's efforts to standardise on an X25 packet protocol for government use. As work progresses on a proposed standard for all US government telecommunications, the Pentagon has balked at using X25, although the exact reasons for doing so have not been made public.

Ironically, the Department of Defence was responsible for developing packet switching in the first place, via the Arpanet system linking a wide variety of government and research agencies, such as universities. One of the initial reasons for developing packet switching was to achieve greater telecommunications security, although security concerns are apparently not a prime reason behind the DoD's objections.

Some observers, however, believe one reason DoD has rejected the proposed standards is the desire to adopt the original Arpanet protocols officially, rather than the X25 standards developed internationally. Arpanet has already absorbed a huge amount of money.

In any case, the upshot of the Pentagon's actions could be a windfall for vendors, since DoD bidders would be required to provide non-standard hardware for DoD's telecommunications.

The overwhelming majority of government agencies, including the Federal Bureau of Investigation, Central Intelligence Agency, the Federal Reserve Board, and others, have gone along with the proposed standard. If it is adopted, X25 packet switching would become an official Federal Information Processing System.

Nedo calls for state support

by Kevan Pearson

THE National Economic Development Office has renewed its call for a government-led policy for the electronics industry, following criticism by Information Technology Minister Kenneth Baker after the plan was first outlined.

Nedo is calling for a Japanese style policy of government support and co-operative ventures to ensure Britain's international competitiveness in electronics. The policy is outlined in a report from Nedo's Electronic Economic Development Committee, and calls for selective support for the development of computer systems, telecommunications and teletext.

It also calls for: changes in the way the government, as a majority purchaser of the production of the electronics industry, conducts its procurement; changes in restrictive trade practices legislation to allow Japanese style collaborative ventures; and for the creation of an industrial and financial environment concomitant with technological innovation.

Nedo's policy was roundly rebuffed in February by Baker, who accused Nedo of calling for government support without getting anything from industry. A spokesman for Nedo said that it wanted joint initiatives by the government and private industry, not unilateral government action.

Kevin Cahill reports on Hanover Fair

Sord poised for UK takeoff

JAPAN is set fair for a further advance into the European microcomputer market. Sord, the country's second largest micro manufacturer has just purchased a showroom and office complex in London which will be the centre for an extensive UK marketing operation.

According to Sord president Takayushi Shiina, exhibiting at the Hanover Fair last week, the company will shortly add a 16-bit desktop machine to its product range. The M416 will have 256K of main memory and enhanced distributed processing facilities, and will be available for the opening of the London office later this year.

Products for sale in the UK will be manufactured in the company's newly announced Irish factory which is expected to employ 400 people by 1984.

The 16-bit M416 is based on the Intel 8086 chip but uses three other microprocessors to control other functions in the machine. The screen is handled by a Z80A while a Z80 controls the keyboard. Operational control is managed by an AM 9512.

This combination of distributed microprocessors handling the machine's internal functions frees the 8086 to achieve a very high level of distributed processing capability, according to Shiina.

The machine comes with colour graphics based on the Sord Colour Graphics SGL language.

Prices in the UK have not been fixed but a figure of [illegible] £12,000 for the M416 is thought to be likely.

Shiina also spoke about a [illegible] machine, but said that this product was still in the planning stage [illegible] not ready for announcement.

Sord has recently climbed [illegible] the number two slot behind [illegible] in the Japanese micro market, [illegible] a 17.3% share achieved in [illegible] years. The sudden emergence [illegible] Sord has been widely attributed [illegible] its unique programming language Pips, which was Shiina's solution to the problem of Basic. This [illegible] fundamentally a very large [illegible] command driven language based on the concept that most business and personal computer applications centre on the use and manipulation of files (see page 14).

Shiina finally revealed that Sord has already constructed and commissioned a large database machine for MITI. He gave no indication why a micro company should [illegible] got itself involved in mainframe type developments, but Japanese commentators say that the database machine is probably [illegible] in design to enable Sord to [illegible] the principles of large-scale machines to micro based devices.

This ties in with another announcement made by Shiina, [illegible] his company had already built [illegible] tested a small scale micro-[illegible] array processor of the type [illegible] scientific calculations.

DEC, Ferranti in joint bid for CAD market

IN A bid to secure a significant stake in the predicted £500 million European market for computer aided design and manufacture systems, Ferranti and Digital Equipment have signed a major new marketing agreement.

Roy Warrender, marketing manager at Ferranti Cetec in Scotland, said that the new co-operation was a milestone for Ferranti. "We will now be able to co-operate directly with the DEC end user sales force when they present packages to their customers."

The software involved is the CAM-X package which was originally developed by Ferranti for its own use on PDP-8 equipment. Since its release as a special package there have been fifteen installations in the UK.

CAM-X is claimed to be one of the few packages which can take a user through the whole product development cycle, incorporating computer aided design and computer aided manufacture with a full range of management information facilities.

The system will run on [illegible] machine in the DEC VAX range but Warrender said that he intended to be the first to offer a CAD CAM system in Europe on the new VAX 11/730, announced last week by DEC.

The 11/730 sells for [illegible] £28,000 and the smallest CAM-X system costs about £40,000.

Ferranti will specialise in supplying the workstations for use with the CAM-X system, but the processing power will come from DEC.

Warrander said that although Ferranti was not the [illegible] authorised supplier of CAD CAM to DEC, he had made a detailed presentation of the Ferranti software to the DEC sales force.

"The prospects of working with DEC and having a share of [illegible] business encouraged us to work really closely with them at [illegible] stages. There are up to 7,000 customers in Europe for this kind of kit and we intend to have a major stake in that business."

ComputerWeekly
Thursday
April 29, 1982
Vol 32 No 806

IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telex: 892084 BISPRS G

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Terms of circulation control: Computer Weekly is sent free of charge to the following categories in the UK only. Company directors, company secretaries, management services [illegible], civil servants responsible for [illegible] puting, management/computer consultants, DP managers/supervisors, [illegible] systems analysts/O&M officers and [illegible] grammers, operators and [illegible] field engineers.
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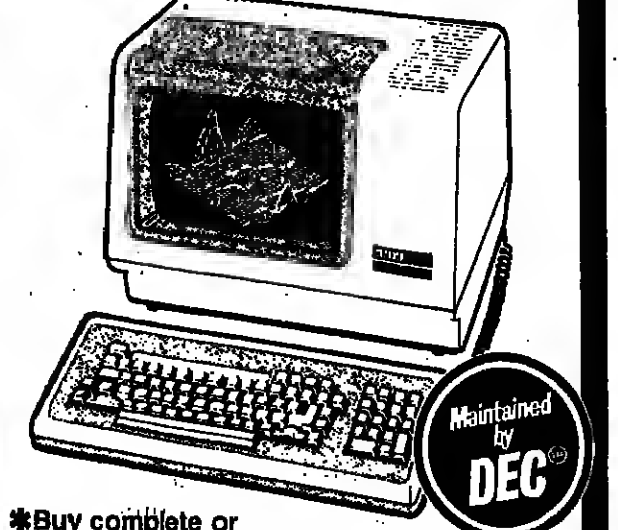
Circulation Dept: IPC Business Press (S&D) Ltd, Oakfield House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 59188.
Publishing Director: Dr J A G Thomas.
Editorial Director: Chris Hipwell.
Published weekly on Thursday. Registered at the Post Office as a newspaper.
ISSN 0010-4787.



UK-US venture to market micro database here

by Claire Gooding

ONE of the most sophisticated databases for microcomputers – with features normally only associated with big mainframe software – is to become widely available in the UK with the link up between a UK and US company.

The successful Micro Database System, MDBS, is already extensively used in the US, and has o[illegible] 1,200 worldwide installations

The new joint venture between consultancy Pactel and [illegible] software vendor Internati[illegible] Software Enterprises, to be known as ISE-Pactel, is aiming primarily at large users in the multi-national corporation league. These users represent Pactel's traditional market – enormous turnkey systems that usually involve telecommunications.

The MDBS database is more a programmer's tool than an end user product, although Pactel chairman Derek Maclaren says that over-the-counter sales to small users may eventually account for 50% of its sales.

ISE teamed up with Pactel to tap its base of large companies which are beginning to discover that the microcomputer can be a cheaper way of solving their computing problems.

Departmental micros, bought independently of firms' computing policy, are increasingly being absorbed into computing facilities as end user demand increases.

"We recognise that the greatest growth area in the industry comes from micros," said Maclaren. "With products such as MDBS, we think that many of our clients will now be able to consider micros seriously for the development of our major applications systems."

MDBS III, the first product to be sold by ISE-Pactel, follows the pattern of development tools in the professional mainframe world, where a database is developed and then has applications hung from it.

ISE already has other development tools in the pipeline which will be sold with MDBS III to make it into a complete development environment, comparable with many mainframe databases such as Cullinane's IDMS.

MDBS III, the most recent implementation of MDBS, typically costs between £2,500 and £5,000. It already runs under the CP/M, MP/M, CP/M-86, PCDOS, Turbodos, TRSDOS and Unix, Xenix, and RSX-11 operating systems, on Z80, 8080, 8086, 8088, Z8000 and PDP-11 machines.

ISE is offering its own compiler for the Unix language C as well as one of the most widely used micro versions of Cobol.

MACLAREN . . . Micros are the greatest growth area in the industry.

French nationalisation of CII-HB complete

by Jack Gee

THE way is open for France to define its national computer policy with the final agreement between the government and the US Honeywell group under which CII-Honeywell Bull will be nationalised.

France will pay $150 million for 27% of the 47% American stake in the venture.

The French and American companies have agreed to maintain technical and trading ties and to develop joint products.

Jacques Stern, a 50-year-old computer specialist, takes over as head of CII-Honeywell Bull. Stern succeeds Maxime Bonnet. He was appointed only last year after the dismissal of chairman Jean-Pierre Brule by Saint Gobain Pont à Mousson which, through Machines Bull, held a 53% stake in the company.

By reducing its stake in CII-Honeywell Bull to 20% Honeywell no longer has to consolidate the French firm's losses – 430 million francs last year – in its own accounts. The French government has not yet decided whether Machines Bull or the state will acquire the 27% holding surrendered by the Americans.

CII-Honeywell Bull, which until now had free access to American licences under an exchange agreement, will pay several tens of millions of dollars over the next five years to continue making Honeywell's Mini-6 and DPS 8. Honeywell has shown no interest in acquiring a licence to build CII-Honeywell Bull's DPS 7.

The French and US firms have renewed their 1975 area sales agreement which gives CII-Honeywell Bull rights throughout Europe, except in Italy and Britain, the Eastern communist block and the Near East. India is now added to this list. The Americans undertake not to compete in these territories.

CII-Honeywell Bull and Honeywell intend to work together to extend the Mini-6's use to scientific purposes under CII-HB's management.

The French consider the new agreement satisfactory. Honeywell has reduced its earlier financial demand because its recent setbacks made it unwise to risk a complete breach with France.

The French government will have to find $300 million – twice as much as it is paying for Honeywell's stake – to enable CII-Honeywell Bull to embark on a major development programme.

Govt to state cable TV policies by year end

by our Parliamentary correspondent

FIRM government policy decisions on the timing and scope of the introduction of wide-band cable systems into the UK will be made before the end of the year, as recommended by the Information Technology Advisory Panel. The government's aim was declared at the end of a Parliamentary debate on cable and the proposed direct broadcast satellite service DBS.

Kenneth Baker, Minister for Information Technology, said in the Commons that his department would be holding a seminar on the industrial, technical and commercial aspects of wide-band cable systems in the course of this summer. He stressed to MPs that the government was seeking a minimum of regulation for cable systems consistent with the considerations of policy on standards outlined by the Home Secretary.

Baker said the exciting prospects of services linked to information technology could in the long run have more far-reaching effects on our society than the Industrial Revolution.

It was anticipated that the initial expansion of cable systems would use both coaxial and optical fibre. At a later stage, perhaps in five to six years, fibre would begin to dominate, at least for the local networks. The government believed that commercial organisations should be left to take their own decisions.

Baker said that British Telecom was introducing optical fibre into its trunk networks, but initially at least there might be insufficient capacity for fibre production to allow its use throughout the system, except experimentally.

A switched system centralises the expensive switching equipment away from the home and so reduces capital, maintenance and operational costs. The technology was developed in the UK.

The alternative to this – the type now in use virtually everywhere – is a "treebranch" system requiring expensive electronic equipment in each home, and for the cable to each home to be capable of carrying all the channels in the system.

Baker said that the working group which his department was establishing to investigate and draw up the necessary technical standards would cover at the minimum, the interconnection between separate cable systems or towns via the main trunk network and the output into the domestic TV set.

It was the government's intention that consumers should be able to use their existing "off-air" TV sets with new cable systems.

It was hoped that the group would be able to produce the minimum necessary standards – at least in draft – by the end of this year.

It was the aim in all this that various services and networks should be capable of interconnection on a national basis.

DBS, as soon as it became operational, would offer immediate cover to almost all areas of the country where cable could not be expected to reach for many years.

Camelot death official

by our Parliamentary correspondent

CONFIRMATION that the Department of Health and Social Security's benefit automation scheme Camelot is being scrapped came this week in Parliament.

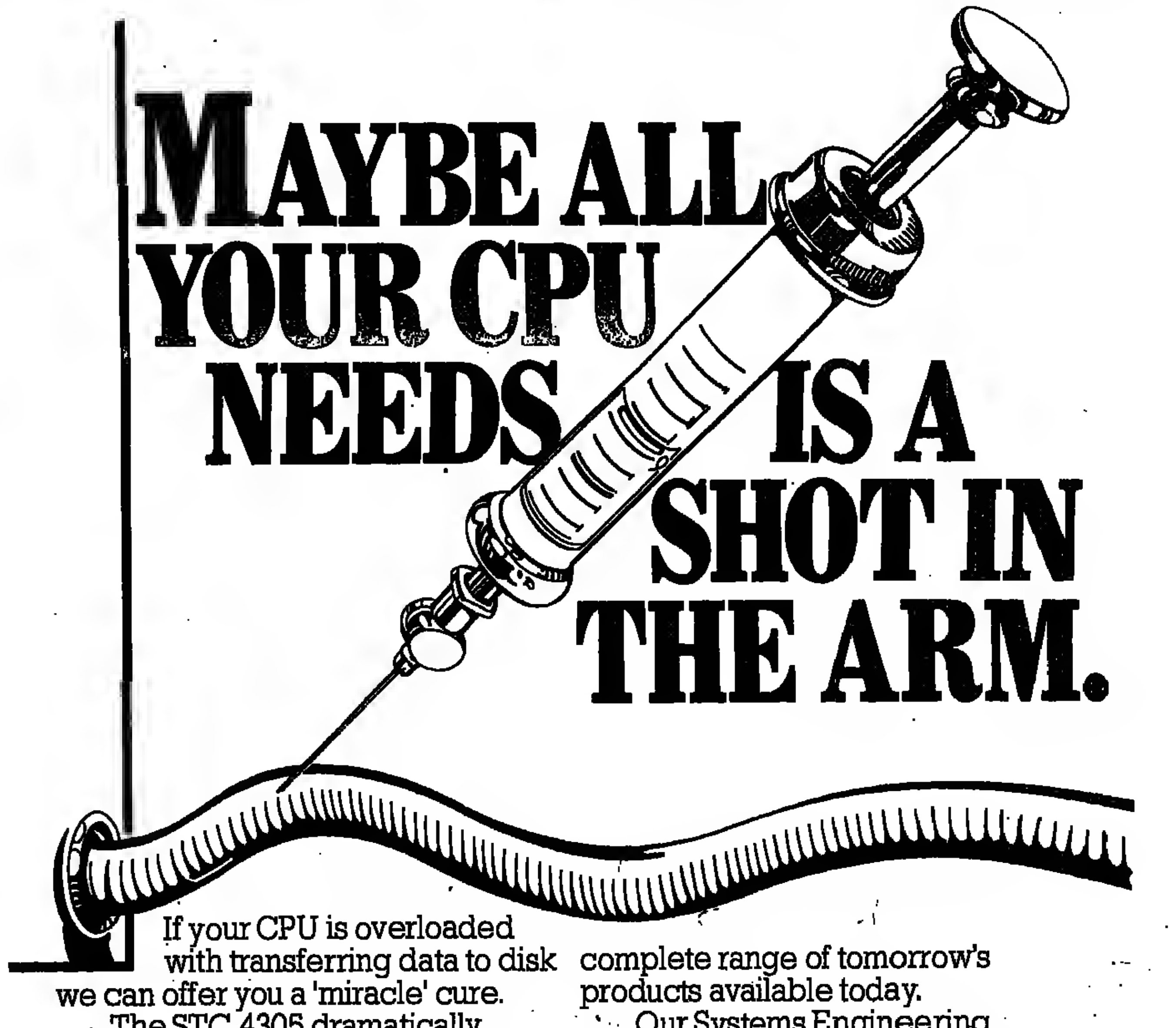
Anthony Newton, Under Secretary of State for Social Services, confirmed revelations by Computer Weekly that Camelot would be replaced by a "wider operational strategy" – the Local office Automatic Data Processing Project (LOP).

The Camelot project would have involved the use of 26 ICL 2950 mainframes spread across the UK, supporting terminals in each local welfare office. But a report on the progress made in the three years of the Camelot pilot programme, produced by consultancy firm Leasco, highlights serious problems with the online system, producing unacceptably long response times.

At the DHSS site in Reading, where the initial work on Camelot was carried out, there was reticence to comment on either the failed project or its successor.

But project controller John Marshall denied that either the DHSS system specification or the ICL hardware were lacking in any respect.

"Camelot was simply overtaken by events," he said. "It was a standalone system – LOP is part of something much bigger."



NAS set to extend top and low ends of range

by Kevan Pearsoo

THE sales battle in the IBM market is hotting up with Nstional Advanced Systems' plans to extend both the bottom and the top of its existing product range.

As well as the 6100 series launched last week, the company will make several additions to its top of the range AS9000 series in the next few months, says John Clements, NAS'a vice-president in charge of Northern Europe.

The AS6100 series comprises two machines at the moment, the AS6130 and the AS6150, both targeted at IBM's 4341 group 2 processor. There will be other machines in the series later this year, says Clemeots.

The AS6100 is intended to replace tbe AS5000, launched in 1977/8. It is made by NAS, unlike the AS7000 and 9000 which are made by Hitachi. It is aimed primarily at new NAS users and as a second CPU for existing installations, says Clements. "The majority of existing AS5000 users will go for something larger than this," be sdds.

Presumably some of the oew users will come from the Magnuson fold. Priot to the collapse ol Magnuson UK before Easter, it had sold 13 machines at the bottom end of the 4300 range. These users will be looking for a larger machine as an upgrade, like the IBM 4341 group 2, the BASF 7/65, or NAS's new AS6100 series.

Clements claims that several Magnuson users contacted NAS after the collapse to talk about service, support, and future upgrades. BASF is also very keen to make inroads into the Magnuson base.

Besidea the oew low-end syatems, NAS is also under contract with Hitachi to take all Hitachi's current range of mainframes. These include the M240H, wbich NAS will market in a 2.5 mips version; the M260H which comes in at about 6 mips and is targeted to compete with IBM's 3083 B; and the top end M280H, rated at 13 mips as a uniprocessor ot over 20 mips in sttached processor form.

The company has already sold two AS9000 DPCs – the attached processor version of the AS9000. Both are installed in the US, and there are no European orders st the moment, says Clements.

Sales of the AS9000 now total 40, with six systems actually installed in the UK and a further three on order.

Deliveries of the AS6130 are scheduled for the third quarter of this year, with the AS6150 following early in 1983. Prices range from about £150,000 fot a four Mbyte 6130, or spproximately 80% of the price of an IBM 4341 group 2. The AS6150 costa about 90% of the comparable 4341 machine.

CLEMENTS . . . Some new NAS users will come from the Magnuson fold.

SALES BRIEF

Welsh brewer drops IBM for ME29

SOUTH Wales real ale brewer S.A. Brain is replacing its two IBM System 3s with an ICL ME29. It is adding two ICL DRS 20 Model [illegible] clusters with a total of 12 workstations on two remote sites for order entry and automatic delivery [illegible] printing.

The brewer also reviewed proposals from IBM, Honeywell, Hewlett-Packard and Data General.

Comms order

IBM has ordered 83 Alphatantel viewdata adspters from Tandata Marketing of Maidenhead for its field engineers to use in communicating wltb head office. Launched earlier this year, the Alphatantel is the first viewdata adapter with an alphanumeric keyboard. IBM's staff will use them with a closed user group database on Prestel.

Apollo takes off

VIDECOM has won a £600,000 order for its new Apollo VDC from Travirom, which provides airline teservation services to travel agents. The Apollo can handle up to 50 different communications protocols including viewdata and those of all the major computer manufacturers. Thomas Cook will use some of them to access both Travicom and its own private viewdata system.

Telex control

FERRANTI hss sold the first [illegible] of its Telex Manager floppy disc based telex terminals to British Airways for use in conjunction with its Amdshl 470 V6 mainframe which controls all its telex traffic. Designed to replace electromechanical terminals, Ferranti's devices can control up to six telex lines and six VDUs and printers.

$2m contract

BANKING systems house Arbat has won a $2 million contract from the Mexican commercial bank Banamex for Digital Equipment PDP-11/44 based systems, to be installed in its London and New York offices. The systems will replace a time sharing service for in-house information handling. It will provide links to the Swift worldwide inter-bank funds transfer network as well as between the two offices.

Bank's licence

CITIBANK hss bought s user's software licence for the Comet electronic mailbox system from BL Systems for £18,500. The syatem runs oo the bank's Digital Equipment PDP-11/70 and is used to pass messages between 160 usets in its Lewisham and Central London offices. Access will be extended to offices overseas through the bank's private communications network.

New image

SURREY-based Micro Consultants of Kenley has won a £73,000 order from Peerless Control Systems for two of its Intellect 100 programmsble desktop image processing systems and a PDS program development system. The systems will be used in X-ray and visual inspection and testing in conjunction wltb a Computer Automation Alpha 4/90 processor.

VAX mini boosts DEC integrated office line

by Alan Simpson

DIGITAL Equipment's relatively late entry to the integrated office systems market could be given a significant boost by the company's new bottom-end VAX minicomputer. The VAX-based system called Office Plus was launched in Europe last week, just a few days after the entry-level minicomputer announcement.

DEC unveiled its strategy in the US late last year, following earlier snnouncementa by the other big mini makers Data General and Hewlett Psckard. Now, with fifteen pilot systems slready operating in the US, DEC's managing director, Darryl Barbe, sees office of the future technology having a considerable impact on compsny revenues by 1986.

Using VT100 series terminals Office-Plus presents the user with a set of facilities that includea text and word processing, electronic mail, electronic filing and retrieval, financial reporting, dsta and calendar management, colour graphics, typesetting and in-house printing systems.

With electronic mail systems being much in the news – Case with its recently introduced InfoMail systems and Systime and Racal at or near the EM starting grid – the Office-Plus syatem will not be short of interest, or challengera.

However in terms of development, over £2 million in hardware alone, 350,000 logged user bours representing over a million messages delivered to four million addresses, Digiral believes it has establisbed a elear operational lead. When linked to tbe well proven Digital word processing technologies, the company has no hesitation in auggesting tbat Office-Plus will set industry atandards.

Not quite so positive though is Digital's attitutde to Ethernet, with local network facilities not being available this year or full Ethernet services for at least two years.

Supporting Office-Plus is a software package Computerised Office Systems Services, which allows users to integrate their existing or future DEC equipment into a full or partial Office-Plus system.

Total costs of a pilot Office-Plus system covering a VAX 780, terminals and software would be about £150,000.

But Digital wss prepared to shed a little light on the anticipated new lower level VAX machine. Its introduction will certainly enable the cost of Office-Plus to be reduced, says Bill Passmore, Digital's UK marketing msnager.

BARBE . . . Office technology will have financial impact by 1986.

Suppliers lose out as govt deadline for local authorities is postponed

by Maggie McLening

A YEAR'S reprieve for local authorities that should bave introduced self-accounting systems for their direct labour organisations is slowing up the anticipated lucrative market for hardware and software suppliers.

Despite govetnment legislation imposing an April 1982 deadline, no cbecks will be made on local authorities' methods of complying until external auditors examine their acrounts at the end of March 1983.

This gives them a substantial breathing space in which to develop in-house computer systems or to updste manual systems, instead of buying a turnkey system from an independent supplier, as originally expected.

This has come as a disappointment to computet rompanies that paid £7,500 for the standard apecification drawn up by the Chartered Institute of Public Finance and Accouotancy, CIPFA. Two "preferred suppliers", ICL and CMC, were chosen by CIPFA to develop custom-built software and did not have to pay for the specification.

But other companies, some of whom already had systems ruoning in local government, felt obliged to buy the specification to show that they were "CIPFA-approved".

ADP Networking Services, one of the suppliers that paid for the specification, has still not sold any systems, although it says that there are some orders in the pipeline.

"Quite frankly we are puzzled that the Department of Environment seems to be softeniog its approach. The pressure on local authorities is slackening and the market has slipped back into the normal cycle of local government aales, which can take months," commented Malcolm Scoggins, director of the public finance sector at ADP.

Peter Ward of CIPFA is not unduly surprised that the computerisation has been slow to take off: "It involves very big decisions and is very time consuming," he explained. "We wanted authorities to take standalone systems to create the minimum of fuss, but the larger authotities that have in-house syatems obviously want to see if their own would be better."

One company that appears to be having few problems is Business Micro Systems of Harrogate and Swansea, whicb has had 18 orders for systems, five of which are now live.

Gwyn Jones, a ditector of BMS, says that any delays are due to the protracted buying cycle common to local authorities.

Of the two preferred suppliers ICL's Dilia package has not received CIPFA's seal of approval as yet. Dilis is undergoing further development wotk to make it "more flexible," according to CIPFA, which should be completed by July, although ICL claims that it is already up and running in several installations.

CMC has sold 20 systems, some of whicb are live, and ICL has 54 contracts covering 75 users, the msjority of which are already ICL users.

NEC delivers first of its 29 mips mainframes

by Kevin Cabill

DELIVERIES have commenced in Japan of a giant 29 mips mainframe computer from Nippon Electric Company, NEC.

The machine, the NEC 1000, is a multiprocessor version of the Honeywell 900 whicb appeared briefly at the end of the 70s, and whieh was subsequently dropped.

The NEC machine is air-cooled with a maximum main memory of 64 Mbytes and a maximum online storage capacity of 236 gigabytes.

No price was quoted for the machine, whieh is 50% more powerful than tival offerings from IBM (3081), Fujitsu (380) or Hitachi (280).

NEC is not an IBM-compatible supplier, but the company claims that the System 100 will run IBM Cobol, with an additional capacity to hatdle Japanese language processing.

So far marketing of the System 1000 is confined to South East Asia by an agreement with Honeywell, but an intriguing question hangs over whether Honeywell will retutn to the top eod of the mainframe market, using the NEC machine.

When Honeywell abandoned the System 9000 on whicb the NEC 1000 ls based, it did so because of cooling problems, and developed the Level 66/85 instesd. NEC has solved the cooling problems and produced a machine fully compatible with Honeywell in an area in which Honeywell currently has no offering.

MAI in office race

by Philip Hunter

THE race to provlde a comprehensive offiee automation strategy has baeo joined by Dutch aystems house MAI with tha release of a new 32-blt minicomputer aod a microeomputer system.

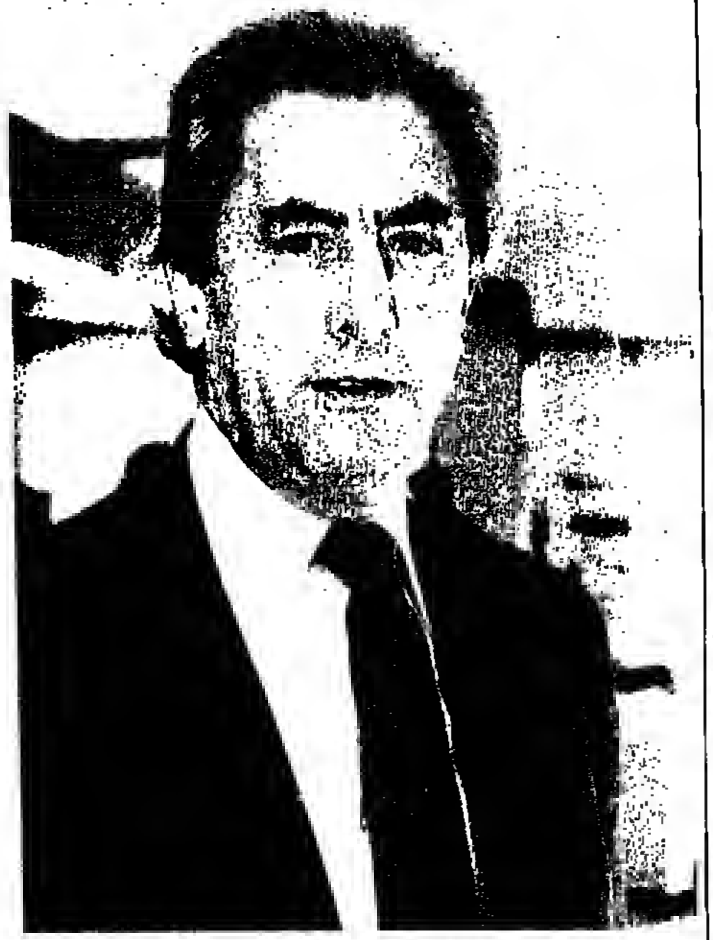
Botb run the Boss operating system, in common with the rest of MAI's range, which givaa users the opportunity of building from a single standalone computer to a powerful mixed syatem based on the supermini 810.

The 810 has more power thao Its predeceasors as a result of some functions now being performed by dedieated external processors.

MAI's new mierocomputer, the s/10, enhanees the marketing elout of the wbola range.

Harris upgrade

HARRIS has launched improved versions of its H80 and H100 super-minicomputers. Designated the H80-1A and H100-1A, the new machines allow each user to run programs of up to 768Kb of executable code.



FLEET . . . sees 9010 appealing to large companies.

IBM enthusiasm wanes for Josephson junctions

by Boris Sedaeca

IBM has confirmed industry suspicions that its one-time shining star for the future, Josepbson Junction technology, no longer figures very bighly in its medium-term strategy.

According to IBM-wstcher Pat Sullivan of Advanced Computer Techniques, IBM indicated to a mecting of analysts early this month that it was no longer pusbing Josepbson Junction as a technology to incorporate into products.

"IBM said that the technology would not be produced for mass distribution in products as it had anticipated. It's the same case with things like optical discs and bubble memories. Out of all the US manufacturers who entered the market, only Intel has stayed in bubble memory production," he said.

Since then, speculation that IBM is cutting back on ita research and development effort into Josephson Junction technology has spread like wildfire, much to the company's embarrassment.

Josephson Junction technology is based on the premise that certain materials become "superconductors" at near absolute zero temperatures to achieve high switching speeds.

"It is incorrect to state that IBM has put its Josephson Junction project on 'hold'," said one IBM spokesman. "On the contrary, our goals are unchanged and the rate of investment in the technology has not decreased."

He pointed out thst IBM had not committed itself to any timescale for bringing out a Josephson computer onto the market.

He also confirmed thst IBM was carrying out studies in s rival technology, Gallium Arsenide (GaAs). All the major semiconductot manufacturers have announced R&D programmes in GaAs technology.

"We are carrying out studies in GaAs but we do not see it as a serious competitor for silicon in the near future as it entails an expensive process," he added.

According to John Curran, vice-president for European marketing at plug-compatible manufacturer Nationol Advanced Systems, it is feasible to build a machine operating at 100 million instructions per second with 140 GaAs chips, and such mschines should find their way onto the market by 1990.

The transistor-transistor logic (TTL) currently used by IBM on its top-end 3081 mainfrsmes puts a theoretical limit of 10 mips out of 1,140 chips on uniprocessor performance, whereas Fujitsu's Emitter-Coupled Logic (ECL) circuitry can achieve the same performance out of 430 chips. Hitachi, claims Curran, can build a 10-mips machine out of 267 ECL chips.

Curran also claims that Hitachi can get 1,500 gates per chip against 704 gates for IBM TTL and 1,300 gates for Fujitsu ECL, snd switching speeds of 0.5 nanoseconds against 1.0 and 0.7 nanoseconds respectively.

Curran estimates that IBM is about two years behind most semiconductor manufscturera on GaAs technology. "They do not compete on the open market and the only time someone takes notice of what they do is when they announce a second soureing sgreement.

"If IBM is not going to announce a Josephson computer, the only other feasible slternative is a computer based on GaAs technology," he said.

ICL opens UK 'shop window'

by Andrew Tbomas

ICL has opened the first of eight planned UK showrooms for its small syatems at Reading. Known as Computer Points, there are already nine similar estoblishments in Germany, Auatralia, and South Africa, which provide a shop window for ICL products ranging from the persooal computer to the ME29 range.

According to ICL, the Computer Point concept is to take the myatique out of computing, and to offer small businesses advice and help on a local baais, with both hardware and software packages, including some from independent software houses, on demonstration.

Computer Point should not be confused with Trader Point, ICL's orher new shceme, which is to work more closely with dealers and software houses.

Staff from ICL's application software division will develop the demonstrotion systems for all Computer Points at the Reading site, and the company is initiating a vertical market advertising campaign to back up the new centres.

NCR on mainframers' micro trail

by Robert Parry

THE stesdy march of mainframe manufacturers into the microcomputer arena continues. Last week NCR made its official entry with the UK announcement of s small business system and networking units.

A personal computer, a fsctory terminal cootroller and the scientific workstation executing Psscal p-code will be availsble lster in the year.

NCR's long-time rivsl in the UK small business msrket, Burroughs, will be launchiog its microcomputer, the B20, in two weeks' time.

All NCR's new products are based oo a bost workststion, using an 8-bit 8085 microprocessor, with different modules plugged in to make up wbst is called the 9010 family. The 8-bit processor was chosen to take advantsge of CP/M, the most widely used opersting system for microcomputers, and all the spplication software it makes available.

Prices for the units released atart from £5,700 for a satellite terminal, with s typical small business system – 128K RAM, 10-Mbyte hard disc and a matrix printer – costing £10,200.

Internal memory ranges from 64K to 256K, with floppy or hard discs giving up to 40 Mbytes storage. On present units the disc storage is separate, but a 5¼" floppy drive will be integrated into the personal computer. Expandability to higher members of the 9010 family will be maiotaloed right down to the personal computer.

NCR has developed its own operating software, DPS, ss well ns implementing CP/M. DPS runs Bssic and Cobol for spplication programs and can support four independent programs running concurrently on separate workstations. DPS offers multiprogramming and communication cspabilities normally found only on larger computet systems, says managing director Rex Fleet, who sees the 9010 appealing to major companies installing small business systems for departmental processing.

Communication protocols include NCR's DLC, which lets a 9010 control a network of up to 16 secondary DLC terminals. Tbese can be mixed financial, point of sale or general purpose terminals from NCR. Other protocols include IBM 2780, 3780 and 3270, allowing 9010s to communicate with NCR and IBM compatible computets.

Applieation software from NCR's 9020 minicomputer range will run directly on the 9010, says Gary Lowrey, produet group marketiog manager for NCR microsystems, with a simple utility transferring files and programs from one system to the other.

Software compatibility will be maintained in future 9010 models and other mlcroeomputers. Lowrey says thst a 16-bit miero is likely, probably using tbe Motorola 68000 chip, but not until NCR sees a stable 16-bit operating system, be it Unix, CP/M-86 or whatever.

16-bit attacks slice of French office market

by Jack Gee

THOMSON-CSF has launched a major assault on the office communications market with the presentation of its Micromega 32 desktop business computer.

The Thomson veoture gives colour to recent predictioos that France will have Europe's biggest rate of expansion in office computers over the oext few years.

The 16-bit Micromega was developed jolotly wlth Fortune Systems Corp, Thomson's subsidiary at San Carlos, California. It uses a Motorola 68000 microprocessor and offers 128K of system memory with a bigh performance Unix operating system.

The French share of the office computet market is expected to rise from a current level of eigbt per cent to 17 per cent by 1986. Thomson is confident that It can capture one-fifth of the Frehch slice.

The launebing of tbe Micromega 32 was followed by an announeement that Thomson's US subsidiary Thocoram ls joining in the capital expansion of its affiliate Fortune Systems.

Fortune's capital is being raised from $8.5 million to $19 million with a supplementary option of up to $20.5 million.

Thomson, which will be making the Micromega 32 at a factory in Brest, is setting up a new marketing network for the newcomer.

NEWS BRIEF

Honeywell mainframe system launch

HONEYWELL has followed up its mini-based private viewdata system Incotel, launched in 1980, with a mainframe-based system developed by Thorn-EMI. Designed to take advantage of the database management and teleprocessing facilities available for Honeywell's DPS8 and Level 66 machines, the Themis system has been running as a bureau service since the end of last year and is to be sold by Honeywell for £35,000.

New address

A4 Professional Services, the equipment hire and non-broadcast sales division of Crow, has now moved to the company's headquarters at Katesgrove Lane, Reading. The postal address is now A4 Professional Services, PO Box 99, Reading RG1 2NA. Tel: (0734) 580942.

Graphics tool

A GRAPHICS software tool to aid CAD/CAM productivity has been announced by Milton Keynes-based Gould SEL Computer Systems for its range of 32-bit minicomputers. Priced from £12,000, the Template library offers a full range of graphics design facilities.

Hi-tech firms growing despite their managers

by Andrew Thomas

HIGH technology companies are weathering the recession better than most in the UK. But there is still room for improvement in the calibre of their senior managers, according to a survey* carried out by one of the world's largest headhunting firms.

Korn/Ferry International polled 150 executive directors of high technology companies with turnovers ranging from £25 million to £3,000 million.

Only 45% of the high technology companies surveyed saw cash flow as a problem, compared with 58% in a sample of general industry. On the question of orders, 20% of the high technology firms were concerned with their order books, while 44% of the rest of industry were worried.

Technology-based companies pay their executive directors an average remuneration of £39,500, compared with £35,800 in general industry.

No director received less than £22,000, but over 10% in the general sample did. Three per cent were paid sums in excess of £75,000. But despite healthier order books and higher salaries, the directors expressed concern over the quality of their managers.

Ten per cent described their senior management as excellent, 72% as good, and 10% as average. A majority of 75% feel there is considerable room for improvement in the calibre of their senior managers.

Only 7.5% of middle managers fell into the excellent bracket, 65% were described as good, and 20% were average. No less than 90% of directors believe that the quality of middle management needed improvement.

Terence Otway, head of the new KFI high technology division says that this may be explained by the rapidly changing environment found in high technology companies which places greater demands on middle and senior managers than their counterparts in general industry.

Over 20% of executive directors were appointed to the board from outside the company, rather than recruited internally, which contrasts with the general industry where management is usually appointed from within.

Says Otway: "Any industry with a growth rate in excess of 15% – and high technology is certainly more than that – cannot expect to fill all its key management posts from within."

*High Technology Industry Study 1982. Korn/Ferry International, 2-4 St James Place, London SW1. £3.00 + VAT.

GARRIDO . . . British-made printer competes with Epson and Oki models.

UK printer to rival Japanese

by Donald Kennett

AFTER four years of building matrix printers around imported mechanisms, UK firm Walters Microsystems has launched its first entirely in-house designed and built product. The 120 character per second 80 column WM 2000 sells for £395.

Managing director Enrique Garrido says his company has spent 18 months developing it and had finished up with a product that is competitive with comparable models in the popular Epson and Oki ranges.

The company's previous products cost about £100 more than their competitors, although it sold 7,000 of the 80 column model and 1,800 of the 132 column model.

The printer has a ribbon cartridge (usually found only on 132 column and daisy wheel printers), a nine needle head and a 750 character buffer. It prints the 64 graphics characters in the Commodore Pet character set (as well as the 96 standard Ascii characters) at 66 or 72 lines to the page and 40, 66, 80 or 132 characters to the line.

It will be sold through Walters' seven regional dealers and Currys' Micro-C shops.

The company plans to increase the proportion of its effort spent on developing and producing its own products, reducing the subcontract design and production work it has done since it was set up 12 years ago.

Microcomputer flavour at Compec Europe

by Kevan Pearson

A STRONG flavour of microcomputers will pervade this year's Compec Europe exhibition, to be held at the Centre International Rogier, in Brussels, from May 4 to 6.

Most of the major product offerings will be represented, including IBM's Personal Computer, but they will be shown by distributors rather than the manufacturers themselves.

The IBM machine is being exhibited by Vollwood Computers, of Eindhoven, Holland, in advance of the machine's official launch in Europe by IBM.

The UK's own microcomputer industry is being represented by Cambridge based Comart. Comart will be showing its Communicator range of Zilog Z80 based microcomputers supporting CP/M and M/MP, with 64 Kbytes of RAM and up to 40 megabytes of online disc storage using mini (5¼in.) sealed, hard, Winchester type disc drives.

Another UK company, Country Computers of Redditch, is offering an Apple II compatible system. The machine is based on the Apple II board, using a 6502 chip, so the machine can run the wealth of software developed for what must be one of the most popular microcomputers ever made.

The Acclaim is completely redesigned as an integrated unit with a detachable key-board, anti-glare screen, and a built-in Winchester type disc, none of which are available on the standard Apple II.

Olympia International, the West German office equipment manufacturer, is displaying its Olympia Boss micro system, which is available either as a single standalone, or multiple system. It can support up to four five-megabyte Winchester type discs.

National Panasonic, Sord and Intertec comprise the Japanese presence at the show. National Panasonic is represented by Noron of Brussels which will have a range of Panasonic desktop computers, based on CP/M. Included in the display will be the RL-H1000, hand-held 6502 based micro.

Intertec's Superbrain can be seen on the Rodelco stand, as can the Compustar multi-user system. Rodelco also handles the Corvus Omninet microcomputer network and Corvus's hard disc system which can handle up to 80 megabytes of data, and which can be linked to the Corvus network as a shared resource in a multi-user environment.

Sord Computer is being represented by Antwerp based Egemin which will show the M23 and the multi-user M243 systems.

Belgium's own microcomputer industry is represented by ITC which supplies the Z80 based Butler system.

Vote for IBM software

by Kevan Pearson

A SURVEY of IBM user sites in the US has shown that there is growing support for IBM's systems software.

The latest survey conducted by IDC, the US-based research consultancy, shows that use of the big machine operating system MVS has grown by 50% in the two years since the survey was last conducted. Of the 888 sites in the sample 21% now use MVS, as opposed to only 14.4% in 1979, indicating a massive move to large-scale computer systems.

Support for CICS, the teleprocessing monitor has reached "overwhelming" proportions, says IDC, with 77% of users sampled preferring to use IBM's own teleprocessing monitor rather than one of the many independent systems available.

The overall use of IBM's database management systems, DL1 for smaller computers and IMS for large systems running under the MVS regime, has dropped by 5%. But 17% of the sites use IMS, only 4% below those using MVS.

DL/I, designed to run under DOS/VSE, was chosen by 40% of the sites. Both systems were more widely used than any of the competitive, independent systems.

Further details of the report, IBM Software Environment, costing $3,000, are available from IDC, 01-995 9222.

Donald Kennett reports on the major show, Comms '82, held biennially at Birmingham's national Exhibition Centre

BT launches teletex

BRITISH Telecom used Comms 82 to launch its plans for teletex, the text transmission service designed to supplement and eventually to supersede telex.

The service is to have a phased introduction, with pilot trials this summer leading to interconnection with other national teletex services in 1984.

BT chairman Sir George Jefferson says that within five years the service could be as big as telex is today – or 100,000 users in the UK and 1.2 million worldwide.

Some 30 companies are said to be co-operating with BT in developing a wide range of terminals for technical and market trials from this summer onwards. These will range from electric typewriters with communications interfaces and a minimum 32 Kbytes of memory for text storage, to interfaces for existing message switches and a variety of processor-based systems.

Sending an A4 page of text will take less than 10 seconds, much faster than either facsimile transmission or telex.

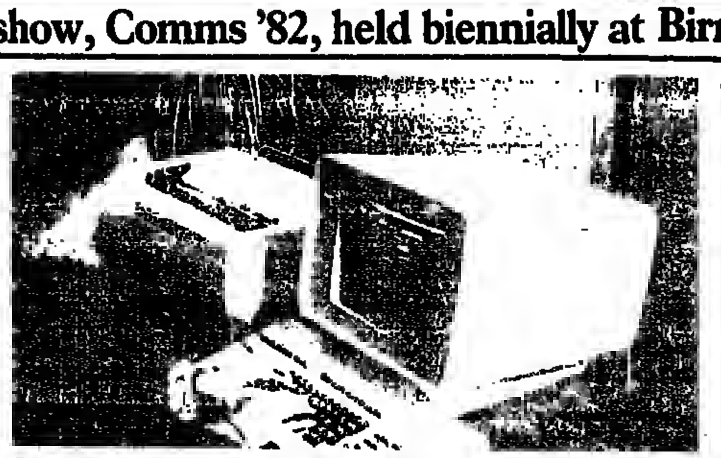
BT has published a technical guide to implementing a terminal, and from the summer will provide test facilities operating over the public telephone network from its Martlesham research laboratory. This will not necessarily ensure that the terminals are compatible with each other. Ironing out any differences that appear is the aim of the trial phase, leading to a full public launch next year.

By the end of next year, interconnection is to be made with the SwitchStream One public packet switched network and the telex network, using conversion facilities attached to telephone exchanges. Charges will be incurred for the use of each network at normal rates, plus a charge for using the conversion facility. Quarterly charges will include a premium for the compilation and distribution of the teletex directory, as well as the normal line rental.

Terminals will be supplied by private industry, but supported and maintained by BT, being the first attachment to their own exchange line as defined by the British Telecommunications Act 1981. A separate exchange line is required for a teletex terminal so that automatic transmission and reception can be given reasonable reliability and to compile teletex directories.

BT's main earnings from teletex will come from increased traffic on its networks. Data is currently less than a tenth of voice traffic, but is expected to exceed it eventually.

Enhancements being considered for the service include a computer-based directory, and facilities for transmitting facsimile and Prestel-type information.



Teletex could be as big as telex within five years.

Keep IT cosmopolitan

THE UK is too small a market to sustain any information technology company or product in the long term, Information Technology Minister Kenneth Baker warned last week. Speaking at the Communications 82 exhibition in Birmingham, he said that firms should design their products and services to appeal to the overseas visitors at exhibitions and should aim for world-scale production.

The government is anxious to gain the benefits of information technology for the UK, Baker says, and it needs response from industry quickly, to take companies' views into account in national decisions.

Baker referred to an opinion poll held earlier this year which found that 83% of the population had never heard of information technology, but 54% thought it was the most important area for development.

The government's plans to encourage the setting up of a national wideband transmission network are not just to lay on "wall-to-wall Dallas," Baker says, but to provide the foundations for a huge area of opportunity in interactive services, starting with home banking, shopping, security and message transmission.

To ensure that the UK's existing broadcasting and telecommunications industries, are not undermined, Lord Hunt was appointed to investigate the area by the end of September

UK modem from Case

HOT on the heels of its record-breaking year-end results, data communications company Case launched its first UK-designed modem at Communications 82.

Priced at about £500, the 440/12 is designed to allow error-free communication at 1,200 bits per second over dialled circuits for simple asynchronous terminals and microcomputers emulating them.

A pair of 440/12s can communicate over a dialled circuit at 1,200 bits per second half-duplex in error correcting mode and can run tests on themselves and each other. They also use standard auto-dial and auto-answer techniques for communicating with other modems, either in half-duplex mode at 1,200 bits per second or full-duplex to a viewdata computer (transmitting at 75 bits per second and receiving at 1,200).

Sales director Mike Hafferty anticipates a big market for the device, since it makes error-free links very easy to set up for micro users. Plans include exporting it via the distributorships established for the company's DCX range of networking multiplexers, exports of which accounted for 15% of last year's £17.5 million turnover.

Over 40% of DCX sales are now made overseas and the proportion is growing. Last month, the company signed an agreement under which DCX will be sold and eventually made in the US by Case's modem supplier Paradyne.

Another new product Case had on show was the 470/160 16,000 bit per second modem launched in the US six months ago by Paradyne, following up the £6,500 14,400 bit per second 470/144 of which it has sold 60 since its UK launch late last year.

The company also demonstrated the Infomail electronic mailbox and information management system it has licensed from packet switching pioneer Bolt Beranek & Newman in the US. Costing from £20,000 to £40,000 according to the machine it is to run on and the operating system interface required, the system can support up to 4,000 users and provides filing, forms creation and message handling facilities.

Other companies showing modems for the first time included Master Systems, which claims to have the only complete range of modems designed and made in the UK, and DaCom, a data communications distributor set up last year by two ex-Scicon people John Bohn and Vaughan Roberts.

DaCom has arranged to be main UK distributor for the first product of Concord Data Systems in the US, a V22 1,200 bit per second two-wire full-duplex modem.

SOFTWARE BRIEF

SDL aims at Unix market

HAVING estimated the market for Unix-related software development tools to be worth $600 million over the next four years, Systems Designers Limited (SDL) of Fleet in Hampshire is setting out to carve a slice of it.

It has announced that a complete set of new products, with emphasis on inter-process communications, will be available by the end of the year.

Easy transfer

AMONG new products released by Triumph Adler for its Alphatronic microcomputer is a management system called Alphacontrol, which allows a user to computerise his accounts, but keep existing codes and references. Costing £1,100 for five modules, the system has been developed by Derwent Data Systems of Sunderland, the Alphatronic systems house that has also announced the Bookworm word processing package.

Hotel manager

HOTEL stock control of food and drink can be interfaced with financial accounting using a newly-launched system, Host, from Hooper Systems and Technology. Developed in conjunction with the Central Park Hotel in London, the system can handle multiple outlets and links with Host's Interactive Business Service (IBS).

Decision plotter

OXFORD systems house Grafox has released a graphical database and statistical analysis system for the business user called Dataplot. Intended for use in decision making, or as a tool for users making presentations, Dataplot consists of a Rair Black Box model 3/30 or 3/50, the Lynwood Alpha Graphics colour VDU and the Calcomp 81 8-pen plotter. The whole package costs £12,250.

Builder's mate

OVER £150,000 worth of orders have been taken for Kalamazoo Business Systems' newly-released microcomputer package for the construction industry. Running on Kalamazoo's own small business machines, the K1000, K1500 and K1600, the package handles payroll, labour costs analysis, contract sales and purchases with cost analysis and collection.

Mercer price cuts

PRICE cuts averaging 45% on all packages have been announced by software house Mercer Computer Systems in Farnborough, Hants. Specialists in Rediffusion R800/1800 software, Mercer Computer Systems offers products designed to operate on viewdata and conventional terminals, covering a range of utilities to speed systems development.

DIY graphics

SCIENTIFIC users of the Intellect 100 image processing system can now develop their own application software, using the newly launched Program Development Sytem (PDS) add-on option. Available from Surrey-based Micro Consultants, PDS allows users to formulate special purpose image processing algorithms using Fortran.

Accounting duo

AIMING to widen the range of accounting packages available on business microcomputers, systems house IBR Microcomputers is now offering the Padmeade package on the NEC PC8000 range. This combination of hard and software gives the user sales, purchase and nominal ledger financial systems, and a stock control package, for £2,600.

SOFTWARE FILE **by Maggie McLening**

Online theatre bookings go transatlantic

TRANSATLANTIC theatre booking might seem a far-fetched idea, but it is soon to be available from Space-Time Systems, the small British software house that beat ICL to the prestigious £200,000 contract at the Barbican arts centre.

The first transatlantic tickets were sold as part of a demonstration of Space-Time's online Box Office Computer System (Bocs) at the third annual conference of Box Office Management International, held in St Louis, Missouri, earlier this year. Space-Time Systems, whose offices are in Covent Garden, expects to launch a live version of the product in the US in July.

Bocs was announced in the UK in August 1980, and ten systems have now been sold. Installations include large theatres such as the Palace Theatre in Manchester, the Winter Gardens in Eastbourne and the £140 million Barbican Centre in London.

Further provisional orders will bring the number of venues operating "Bocs offices" up to 25 by mid-1982, according to Ken Fraser, managing director of Space-Time Systems.

"One of the reasons for Bocs' success is that it is what the Americans call a Vanilla system, because it uses standard hardware and software. This has guaranteed the ability to enhance and refine the system over its first year of operation and ensures that Bocs can always exploit the continuing developments of the world's largest minicomputer supplier," he said.

Written in Fortran, the system runs on DEC PDP-11s under the RSX-11 operating system, but Fraser intends to offer a version for the VAX machine later this year. DEC equipment was chosen because of the number of compatible devices available, and also to take advantage of DEC's overseas commitment, he said.

Bocs differs from other theatre booking systems in that it is in-house, while most are bureau-type services shared by several venues.

Seats are selected by the box-office user from a theatre seating plan display showing aisle and seat numbers, with shading to denote different price brackets.

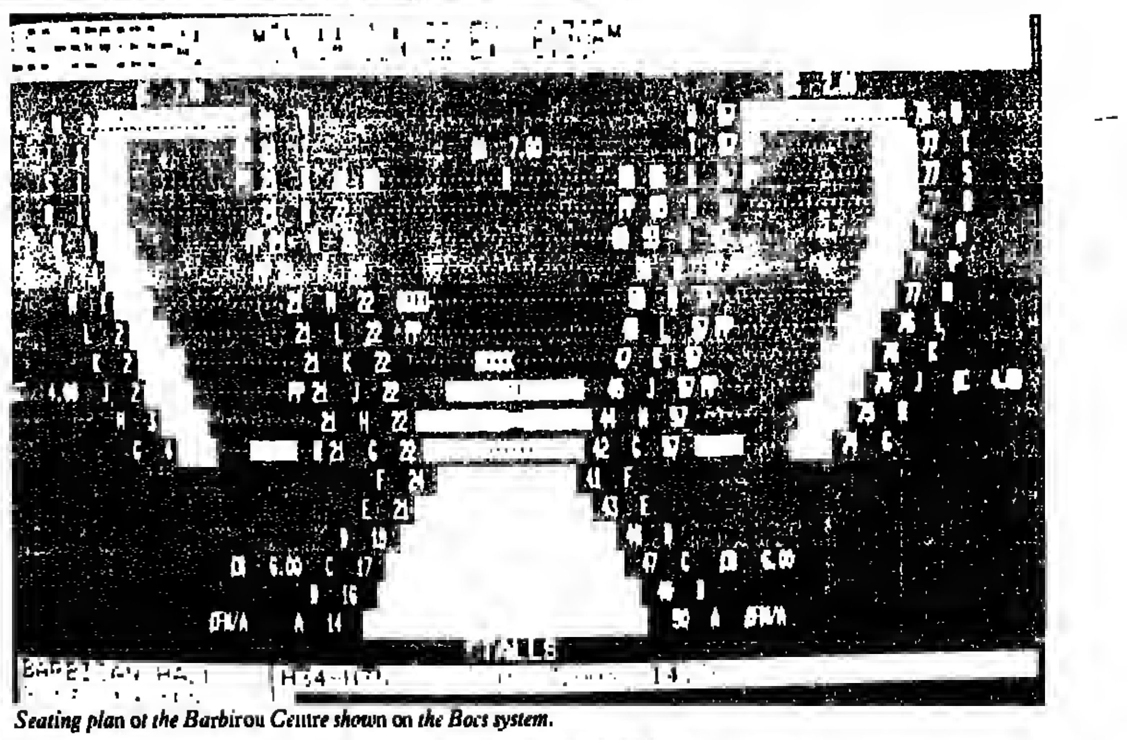
Although there is standard notation within the system to show whether seats are available, sold, or "pencil booked" by telephone, other symbols can be chosen by theatre management to highlight different situations. Function keys are used to allocate seats and describe the method of payment. Tickets are printed only when seats have been sold, which allows adjustment of pricing according to market conditions.

A hard-copy seating plan can be produced at any time, which is not just a direct copy of the VDU screen, but is supplemented with other information from the database. Resumés of forthcoming events for any venue requested can also be produced, together with analyses of seats sold.

Future plans for the system include linking with viewdata, possibly using the Miracle system offered by D. M. England, or the Gateway facility into Prestel. Fraser does not believe that applications for Bocs will be limited to the theatre.

"I can see it being used for leisure bookings, perhaps by local authorities," he said. "It is being used in Warrington at the moment for squash and table tennis bookings, but it could also be applied to allotments, football pitches or video cassette rental."

If Bocs is used for this type of application, use of displays alters slightly, in that they become two-dimensional with co-ordinates location and time, but the basic system requires no alteration.



Seating plan of the Barbican Centre shown on the Bocs system.

Fraser . . . "It's what the Americans call a Vanilla system, because it uses standard hardware and software."

HP revs up its software

LIKE most of the other big computer manufacturers, Hewlett-Packard is getting its software efforts into high gear.

Having recently launched the HP Plus scheme to assist third-party software suppliers in selling to their customers, HP is also starting to reap the rewards of its £7 million investment in the Pinewood international software development centre. Five orders were received for HPMail, the first product to be developed entirely at Pinewood, even before the price of the software was announced.

"We think that you can't have too many solutions to offer customers," said Dave Townsend, marketing manager of Commercial Systems at Pinewood. "At Pinewood we're aiming to provide complete solutions to the manufacturing industry."

Hewlett-Packard has adopted a methodical approach, and divided the industry into four sections to be tackled individually. On the scientific side, it has already covered computer-aided engineering and materials management, although it still relies on OEMs and software suppliers for access to vertical markets.

Now it is concentrating on administration and office services, of which HPMail is a crucial part. It is a software package that provides the user with the electronic equivalent of in and out trays and a personal filing cabinet, with message distribution facilities.

An extension to the system to give departmental filing, including offline document management and archiving, should also be available by the end of the year, according to Townsend, who uses HPMail from the terminal on his desk.

TOWNSEND . . . "We think you can't have too many solutions to offer customers."

Enhanced Focus provides full database access

A FULL interface to Total and Adabas databases is one of the major features of the new release of Focus, the IBM-compatible application building language.

Developed by Information Builders in New York, Focus is available in the UK from Information Builders (UK).

Currently running on IBM 4300, 370 and 303X series machines under MVS with TSO, MVS/CICS or VM/CMS, Focus allows the user to describe and build a complete application system from scratch.

The company claims productivity gains of 10:1 for programmers using it for system development. Alternatively, Focus may be used to retrieve and report on data from existing databases.

Release 3.9 will enable users to "join" IMS, IDMS, Adabas and Total databases together to form new virtual file structures that can be accessed for analyses and reporting.

by Kevin Cahill

In software, packaging is more important than package

AMERICAN financiers have no special monopoly on commercial wisdom, but when it comes to getting a software company together, their past success makes it worth listening to what they have to say.

One of the more useful documents to come out recently is the quarterly review of the computer services industry in the United States, prepared by Donns Newby and Lloyd Kanev of New York stockbrokers Smith Barney Harris Upham.

The prime purpose of the review is to guide US investors in their choice of software company investments.

In practice it goes far more deeply into the financial structure of the industry, and specific companies, than the usual investment analysts, and consequently comes up with a series of points which are applicable to UK software companies.

The guide describes the software company sector as "the glamour stocks of 1981." This was certainly true in the US, though less so here. Some entrants onto the UK Stock Exchange's Unlisted Securities Market – STAR, CCF, Rolf and Nolan – certainly started their public financial life at prices which qualify them as "pretty" stocks, if they don't quite achieve "glamour" in the US sense.

On the other hand, the UK services sector has just taken a body blow with the sudden financial troubles of three large software service companies – Computer Resources, Zeus-Hermes and Computer Services of Acton.

Looking back a little further, ICL's Dataskil had been in declining profitability for three years before Robb Wilmot absorbed it into the main company six months ago.

Against this kind of background, what do the American analysts see as the key factors for success?

"Strong management, a first-class sales and marketing force and financial strength are the three ingredients we view as the key to ultimate success in this increasingly competitive industry," they say.

Taking management first, Newby and Kanev describe it as the most critical element in the success of any company, but a factor "which is even more important in this sector."

They say that few computer service companies ever have operated in severe recessionary environments – most of their management learned their skills on the job or in the data processing industry, which, heretofore, has not been severely affected by recession.

The skills the analysts emphasise are the financial and management ones of the ruling team, with not even a mention of their technical skills in relation to the industry.

When it comes to marketing, the views of Newby and Kanev will come as a dose of cold water to the approach adopted by so many UK software houses. They say, and they have had ten years' experience of watching how companies perform, that "a computer software company's marketing and sales capabilities are more important than its actual products.

"A company can have the best products in the industry (and quite frequently UK software companies do). If, however, the marketing and sales force cannot properly evaluate, posture, and deliver the products, success will be most difficult to come by."

The last item making for success, according to the report, is the financial strength of the company. Most computer software companies, it says, start out with a limited number of products with relatively short life cycles.

Adequate financial strength is necessary to develop add-on or new products, or to acquire existing products or line extensions from others. Product development costs can be substantial, and in some cases exceed revenue expectations from the product for the first several years.

The increasingly attractive economies of purchasing add-on products or new products puts an additional premium on financial strength.

But the stockbrokers end on a very optimistic note. They concur completely with average long-term earnings growth projections for the computer service industry in general, and of the computer software group in particular.

They project a growth rate of 30% (20% net of the expected 10% US inflation rate) for the industry in 1982.

They refer to an article in the US business magazine Forbes in July 1981, which described software companies as the "growth industry's growth industry."

You cannot get more enthusiastic than that.

Scenic signs up Qupro

EDWARDS . . . *Plans cover Europe and Middle East.*

NEWBURY based Qupro Data Systems has announced a five-year multi-million dollar deal to distribute products manufactured by the Scenic Computer Systems Corp of the US.

The agreement covers the full range of Scenic products, which consist principally of hardware to run the UCSD Pascal programming language.

Mike Edwards, managing director of Qupro said that the deal would give Qupro the opportunity to sell the Scenic hardware and software throughout Europe and the Middle East.

Qupro is still less than one year old and has been developing its own Pascal based software for some time.

Edwards said that the company was almost overwhelmed initially by the response to the Pascal products it was offering, and he considers the market sufficently robust for Qupro to need a separate company to market the Scenic products to systems builders and OEMs.

Big three are booming

THE picture in Japan contrasts sharply with the zero growth, or profit falls seen for most of the major US computer companies, last year.

The big three–Fujitsu, Hitachi, NEC – are expected to show an average growth in sales of 15.6%, which is 12% in real terms (after inflation). Mitsubishi, a non-IBM compatible supplier, is expected to show 14% growth.

Profit of each of the three is also showing an increase. NEC and Fujitsu are the top performers, each with 16.5% sales growth.

Fujitsu pushed sales to 445 billion yen on the back of substantial overseas growth. Exports were led by sales of 80 large systems to Siemens in Germany, and a substantial flow of 470s, built in Japan, to Amdahl Corp in California.

NEC, which has recently begun deliveries of a 29-mips processor, the NEC 1000, to customers in Japan, turned in sales of 280 billion yen, a 16.5% rise.

Hitachi, which launched a series of new mainframes on to the European market at Hanover Fair last week, retained the No 3 slot in Japan with turnover of 285 billion yen, a 14% rise.

IBM Japan leaves its competitors behind

IN Japan IBM has suddenly achieved the kind of growth its US parent forgot a decade ago.

The Tokyo-based subsidiary of the world's largest computer company turned in sales figures of 416 billion yen (£965 million approx in 1981, a 23% improvement on the previous year. In terms of Japan's 3%-4% inflation rate this is real growth of 19%, and profits have climbed by 73 billion yen (£17 million) on the previous year.

The growth has been achieved in the face of fierce technical and price competition from local plug compatibles Fujitsu and Hitachi.

Both rivals launched top-end mainframes aimed at the 3081, IBM's most powerful current offering. Despite claimed price/performance advantages of about 2.2 over the 3081, Fujitsu has only reported 15 orders for its top-end machine, the 380, compared with over 100 orders for the 3081 (Nikki Computer), and nine orders for Hitachi's top-end 240 processor.

The figures quoted are for domestic orders in Japan, but much of IBM Japan's success has come from a 50% increase in exports last year.

The dramatic increase in sales by the IBM subsidiary has come as a severe shock to Fujitsu, according to reports in Tokyo. The Japan Economic Journal reports that Fujitsu is expected to have sales in 1981 of 445 billion yen, a 16.5% improvement on last year, but the gap is narrowing between Fujitsu and IBM.

Fujitsu spokesmen say that their company suffered unduly from the fall in the value of the yen, while IBM Japan, which deals in dollars, benefited substantially from the rise in that currency.

The outcome is likely to be an even sharper price war in overseas markets, as Fujitsu in particular steps up its European drive via ICL and Siemens. IBM Japan scored heavily in terms of shipments to the US, China, Brazil and Australia.

Each of those areas is a key Fujitsu market, and companies like Amdahl Corp, which is 26% owned by Fujitsu, can expect new and unprecendented pressure to take Fujitsu equipment.

One small fillip for Fujitsu is the expected announcement from ICL in May of its first M380 sale in the UK.

Glowing prospects for Cray

THE long-term outlook for Cray is outstanding, says Peter Labe, the computer industry analyst at New York stockbrokers Smith Barney Harris Upham.

This week Cray released its latest supercomputer, Cray 2.

"Scientific computing in general is in a long-term uptrend and Cray, which will be marketing three lines of large scientific supercomputers by 1984, instead of the one at present, will be well positioned to take advantage of the trend," he says.

Systime target is £50m

PARKINSON . . . *His confidence seems justified.*

BUSINESS is about risk, and few people are more aware of this than John Parkinson, Systime's ebullient chairman.

Last year he presided over a UK-based minicomputer manufacturer which drove sales up by 33% to £72 million and profits up 40% to £2.2 million. His ambition, which he never tires of reiterating to his staff and visitors, is to get Leeds-based Systime to the £100 million mark in turnover.

He is confident that in 1982 the company will see itself well on the road to that magic number by going through the £50 million barrier.

But there is risk involved.

The company has plunged into a £20 million factory development programme at Millshaw Park in Leeds.

Parkinson says that he recognises that Systime is investing heavily at precisely the time when the recession is undermining support for such a move. But his approach is to look forward to an improvement in the economic climate, and to be prepared to capitalise on the economic upturn.

So far, his confidence seems to be justified. On a month-on-month basis (April to April) Systime has seen an 80% increase in turnover between 1981 and 1982.

The company's OEM business is 100% ahead on the same basis, according to Parkinson.

The growth is coming principally from the company's 500 Series microcomputers, which now have a large amount of proven software. Parkinson notes that this year has seen a big advance in Systime's penetration of blue-chip accounts.

Because of the relative newness and small size of Systime, a lot of the larger companies in the UK have continued to buy from American rivals like DEC and Data General. But Parkinson says this trend has been massively changed, with strategic accounts from big companies occupying more and more of Systime's business.

The other sector in which Systime has recently found unusually high levels of growth is education.

And last year Systime doubled its overseas sales from £2.2 million in 1980, to £4.2 million in 1981.

According to Parkinson, the trend has continued into 1982, with business in the Arabian Gulf "waking up", as he puts it, and a big surge in orders and inquiries from South Africa.

The company is a big employer in a city which has been deeply wounded by the successive recessions of the Seventies, and Parkinson said that of 800 applicants for jobs at the company recently, all bar 200 were the kind of people the company should have to turn away from its doors.

Inside Systime, some of the inevitable signs of rapid growth have made themselves felt, and Parkinson was frank in admitting that a reappraisal of the way people did their jobs had led to some resignations.

CW SHARES TABLE

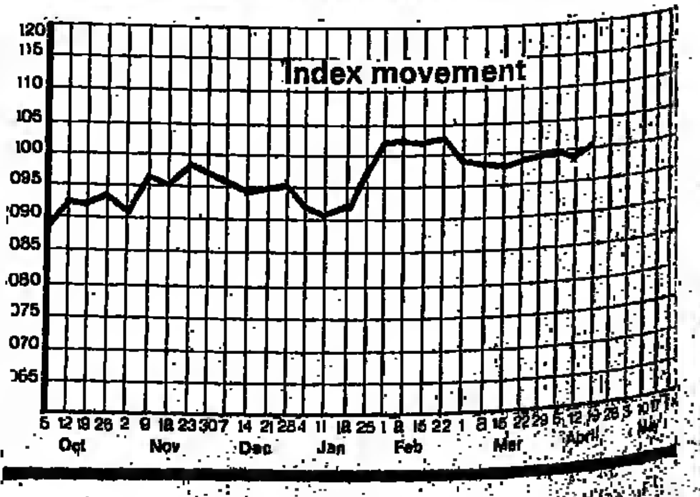
Date 23/4/82 Index 130.72 Chge +1.6

Pence 1981 High	Pence 1981 Low	London Stock Exchange Stock	Pence Price	C'nge
190	111	A Comp Tech. (25p)	190	–
174	150	BOC Int. (25p)	164	+ 3
13	13	B. Bov Kent (25p)	11	+ 1
119	101	Chubb (20p)	119	+ 1
62	48	Cole (R.H.) (25p)	62	–
250	231	C.A.S.E. (20p)	240	+ 7
730	603	De La Rue (25p)	610	+ 2
280	233	Ertel (25p)	273	+ 3
690	621	Ferranti (50p)	680	+ 8
847	797	GEC (15p)	839	+42
34	31	ICL (25p)	34	+ 4
47	41	Kalamazoo (10p)	46	– 1
277	173	Kode Int (25p)	270	+33
273	211	Memec (10p)	270	+20
111	110	Muirhead (25p)	118	–
273	218	Newmarket (1981) ($.05)	246	+ 6
£33½	£28½	Norsk Data	£33	+£2
120	173	Office & Elect (25p)	320	+ 5
535	445	Philips Lamp (F10)	505	+12
388	343	Plessey (50p)	378	+13
97	62	Quest Auto (10p)	67	+ 2
430	353	Racal Elect (25p)	390	+15
250	171	Rediffusion (25p)	231	+ 3
468	411	Thorn-EMI (25p)	430	+ 7
90	76	Utd C&T (50p)	77	+ 1
		OTHER MARKETS*		
90	80	Bus Comp (10p)	85	–
117	411	Comp Serv (£1)	330	–
134	78	Computa (C&F) (10p)	132	– 2
251	245	Io Tech (25p)	245	– 7
170	123½	NMW (£1)	126	+ 3½
55	43	Rolfe & Nolan (10p)	45	–
110	78	ScanData (10p)	110	+13
195	183	Star Comp (10p)	183	– 2
105	100	Trident Comp (10p)	100	–
95	80	Zygal Dyn (5p)	80	–

$ 1982 High	$ 1982 Low	US Stock	$ Price	Chge
29½	19¼	Amdahl	[illegible]	[illegible]
20¼	14¾	Apple Inc	[illegible]	[illegible]
18	23¼	Auto Data Pro	[illegible]	[illegible]
36½	31	Burroughs	[illegible]	[illegible]
31¼	36¼	Commodore	[illegible]	[illegible]
13¼	6¼	Comp Auto	[illegible]	[illegible]
15	11¼	Comp Sciences	[illegible]	[illegible]
15½	12¼	Compshare	[illegible]	[illegible]
35½	29¼	Control Data	[illegible]	[illegible]
36¼	27	Cray Research	[illegible]	[illegible]
33¼	28¼	Data General	[illegible]	[illegible]
49½	20½	Datapoint	[illegible]	[illegible]
23¾	17¾	Dataproducts	[illegible]	[illegible]
87½	72½	Digital Equip	[illegible]	[illegible]
26¼	19¾	Elec Data Sys	[illegible]	[illegible]
6½	3¾	Gen Automation	[illegible]	[illegible]
38¼	28¼	Harris	[illegible]	[illegible]
43¾	36¾	Hewlett-Packard	[illegible]	[illegible]
73	63	Honeywell	[illegible]	[illegible]
28½	20¾	Intel	[illegible]	[illegible]
64½	57	IBM	[illegible]	[illegible]
56	45½	Litton Ind	[illegible]	[illegible]
13¼	10	MDS (Mohawk D.)	[illegible]	[illegible]
22	18	MSA	[illegible]	[illegible]
15	10	[illegible]	[illegible]	[illegible]
8¼	6¼	Modular	[illegible]	[illegible]
63¾	50¼	Motorola	[illegible]	[illegible]
24	11½	National Semi	[illegible]	[illegible]
46¼	40½	NCR	[illegible]	[illegible]
26¼	19	Perkin-Elmer	[illegible]	[illegible]
23¼	17¼	Prime	[illegible]	[illegible]
36¼	29¼	Raytheon	[illegible]	[illegible]
26¼	20¼	Signal	[illegible]	[illegible]
34	27¼	Sperry Comp	[illegible]	[illegible]
34½	14½	Storage Tech	[illegible]	[illegible]
27¾	23½	Tandem	[illegible]	[illegible]
35	28	Tandy	[illegible]	[illegible]
90	70¼	Texas Inst	[illegible]	[illegible]
27¼	16¼	Tymshare	[illegible]	[illegible]
35¾	27	Wang Lab B	[illegible]	[illegible]
9	7½	Wyly	[illegible]	[illegible]

Table shows the closing prices of The London Stock Exchange on Friday and in America on Thursday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.

** Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



by Robert Parry

Eastern micro floppy systems ready for UK

RIVAL micro-floppy disc systems are due to hit this country from the East in the next few weeks. Japanese micro maker Sord is expected to ship evaluation machines with in-built twin three and a half-inch floppy drives from Sony within six weeks. And from Hungary, add-on units with three-inch drives from the Budapest Radio Engineering factory (BRG) were shown with several microcomputers at last weekend's Computer Fair in London. Both were also on view at the Hanover Fair.

The Hungarian import, MCD-1 (for micro cassette disc), is marketed in the UK by BATS-NCI of London. According to director Bill Musker, the device was patented in Hungary in 1974, and is a further development of BRG's audio cassette products.

He expects UK production later this year, and hopes to attack the US market from his London base.

The three-inch floppy disc is enclosed in a plastic cassette – much the same size as the standard audio cassette – with a spring loaded shutter covering access holes for the read/write heads and the drive spindle. This gives the advantages of robustness and tolerance of dusty surroundings, Musker says.

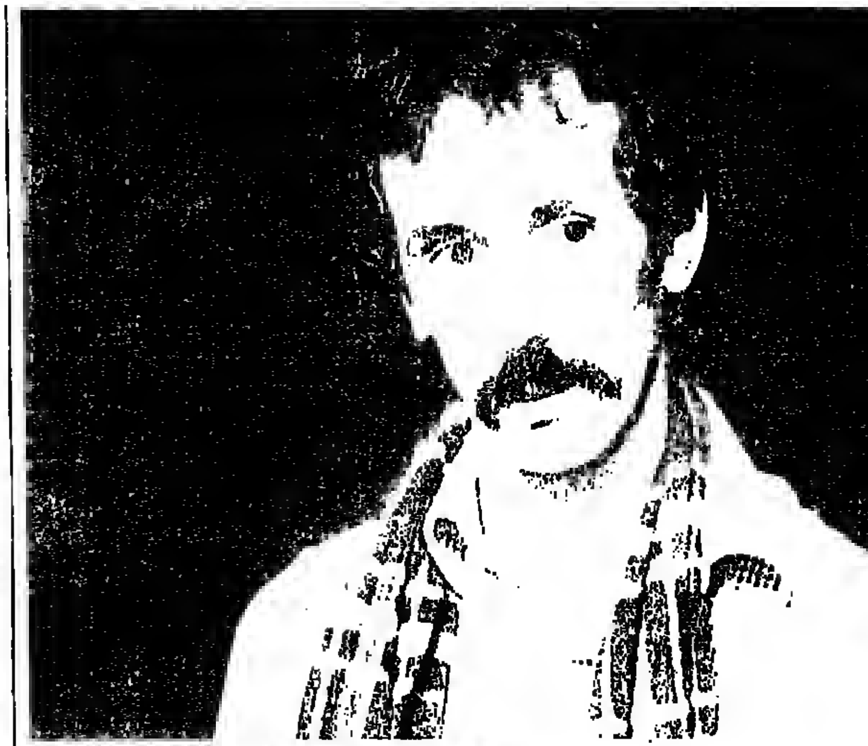
"We are talking to credit card people about hanging units on to point of sale equipment for department stores, where there's dust and lint flying around," says Musker, "and we feel these things really score for home computers, with kids playing with them on the mat."

He reckons a two-drive system will cost the end user less than £300 for single sided versions with a capacity of 150 Kbytes, and he thinks it will not be long before drives with 400 Kbyte capacity appear. The drive mechanism is "pretty gutsy," he says, costing about half to two thirds the price of a five and a quarter-inch drive and needing a smaller (and cheaper) power supply.

Production models have been on field trials for some time in Hungary. Versions for Commodore Pets and Vics have been developed by Compact Business Machines of Brighton; for the Genie by Matlock-based Lowe Electronics and for the Sinclair ZX81 by Macronics of Solihull. Musker sees the ZX81 and the Acorn/BBC micro as "obvious candidates" for the unit.

Similar advantages in price, robustness, and power supply requirements are seen for the Sony units used by Sord. These provide 280 Kbytes per drive on single sided versions, and have been sold with the Sord M23 mark 1 in Japan for some months.

But if these micro-floppies are to catch on, the problem of standardisation needs to be tackled. The Hungarian unit and the Sony drive use different sized discs, and another format and disc have been proposed by Matsushita, Hitachi and Hitachi Maxell.



ROWE . . . *"CP/Maker is no competition for Softbox."*

Board plugs in CP/M to Pet

THE popular Commodore Pet microcomputer is to gain a plug-in board which adds the CP/M operating system and 64 Kbytes of extra RAM. Vector International, Belgium-based European representative of CP/M originator Digital Research, has acquired the rights to a board developed in the US by Madison Computers, to be sold in Europe as CP/Maker.

It fits under the keyboard of 3000, 4000 or 8000 series Pets. The board carries a Z80 processor to run the CP/M software and a 6502 which replaces the Pet's processor and handles input and output.

The two processors run in parallel, giving access to CP/M languages and applications software through the Z80 and to existing Pet software through the 6502.

The CP/Maker board has had a chequered life so far. It was originally developed under contract to Commodore in the US, but was not adopted by the company.

Nor is it the first product to give CP/M to the Pet. London-based Small Systems Engineering has been selling its Softbox, an external box of tricks running CP/M on a Z80, since June last year.

It has recently transferred production to its factory in Mountain View in the US, where it is turning out 1,000 units a month according to Small Systems Engineering's Derek Rowe.

But neither Vector nor Small Systems Engineering view the other as a threat. "CP/Maker is no competition whatsoever," says Rowe, claiming greater speed and better facilities in terms of hard disc and terminal emulation facilities for his Softbox.

"We are not bothered about it as competition," counters Gabor Wiener, Vector's managing director. "CP/Maker is cheaper – and always will be as it doesn't have a separate power supply or chassis – and technically is inherently a better design."

Commodore (UK) prefers the CP/Maker board. It has given a seal of approval by taking it on as an "approved product".

MICRO BRIEF

Bigger gate arrays for Texas range

BIGGER logic arrays have been added to Texas Instruments' range of Schottky transistor logic semicustom devices. The TAT010 and TAT020 offer 1,000 and 2,000 gates respectively, using two micron design rule advanced Schottky transistor logic (ASTL) technology.

They have typical internal gate propagation delay times of one nanosecond, and a power dissipation of 300 mW per gate. IO buffers, 88 on the TAT010 and 120 on the TAT020, allow interfacing to a range of circuits.

NCR expansion

NCR's Microelectronics Division is to expand its OEM semiconductor marketing program by offering 16K, 32K and 64K static and edge-triggered ROMs to external markets. Ten devices are involved initially, with maximum access times ranging from 200 nanoseconds to 450 nanoseconds. Unit prices, in lots of 1,000, go from $4.50 for a 450 ns 16K static ROM to $24 for a 200 ns 64K edge-triggered device.

Intel upgrade

INTEL'S Intellec series II and III development systems have acquired a Winchester disc subsystem as an upgrade. The disc unit, iMDX-750, gives 22 Mbytes of storage with a data transfer rate of 6.4 Mbits per second, giving a 50% improvement in system throughput, claims Intel.

Etch processor

AN etch processing system giving fine line geometries through anisotropic etching of silicon dioxide in VLSI wafers, Tegal Plasma Inline 703, is available from Microsystem Services of High Wycombe.

Zilog, Toshiba CMOS Z8000 agreement

CMOS versions of the Zilog Z8000 16-bit microprocessor are to be developed following a technology exchange agreement between Zilog and Japanese semiconductor manufacturer Toshiba.

Zilog gets Toshiba's CMOS process technology and a handful of chips to add to its product line, while Toshiba becomes an authorised second source for the eight-bit Z80 family as well as the Z8000 16-bit family.

The deal is not yet finalised – it is still awaiting US government approval according to Zilog's European marketing manager Phil Pittman – but time scales should not be too extended. Toshiba will be bringing out NMOS Z8000s in about six months, says Pittman, using masks from Zilog.

This will give a boost to the Z8000's second source list, which suffered a setback when AMD took on the rival Intel 8086 chip as well as the Z8000. The second source foursome is completed by Italian SGS-Ates and Japanese manufacturer Sharp.

The devices Zilog will be adding to its product line are a 16K CMOS RAM, three modem chips (taking Zilog further into the market for communications devices), and a hard disc controller currently being designed at Toshiba.

The CMOS version of the Z8000 CPU will be a joint development by Toshiba and Zilog, and both companies will produce it, says Pittman. It is likely to be a couple of years before the device appears, he adds, but it will be the first of the mainstream 16-bit processors to come out in a CMOS version. Toshiba already has a 16-bit processor, the 88000, which uses CMOS on a sapphire substrate.

Among the other manufacturers, Motorola at least does not see much mileage in a pure CMOS 16-bit CPU. "They really need a lot of memory and interface chips around them," says Motorola's Brian Wilkie, "and CMOS is better for single chip applications where the reduction in power consumption really counts."

Japanese semi makers winning Euro market

SEMICONDUCTOR shipments to Europe in 1981 by US and European companies suffered more than in other geographical areas in a generally gloomy year. Total European IC shipments dropped 18% in value compared with 1980, in contrast to the 1.4% drop in US sales and 2.8% drop in Japan. Overall sales value was 7% down.

These statistics from the US Semiconductor Industry Association do not include Japanese IC manufacturers, whose increased share of the MOS RAM market accounts for much of the decline for US and European companies.

The $300 billion drop for the MOS memory sector, both ROM and RAM, was about three fifths of the overall drop from 1980's $7,073 billion to $6,576 billion.

In volume terms, the memory market rose 38%, indicating a healthy demand according to the SIA quarterly statistical review, but severe price cutting, while fuelling the demand, gave a drastic sales value decline. RAM sales fell 31%, offset partly by an 8% rise in ROM sales.

Other bright spots in the 1981 figures were increases in sales value for MOS microprocessors and peripheral chips, and Schottky TTL logic circuits – up 20% and 3% respectively.

[illegible]

SYSTEMS THOUGHTS

Factors that may spell the end for bureaux

READING through the pages of computer journals one doesn't find nearly so many mentions of computer bureaux as compared with, say, five years ago. Are the bureaux a dying race then, or are they just keeping a low profile?

There are three basic economic facts of life operating to the disadvantage of bureaux today which were formerly not quite so significant. These are: the economies of scale enjoyed by a large installation are now no longer so beneficial with the advent of minis and micros; the labour content of a bureau operation; and the communication costs of getting work to and from bureaux.

I will discuss each of these factors in turn before returning to the general question of the role of the service bureaux.

Before the advent of mini and microcomputers it was undoubtedly cheaper and more efficient to use large computers, provided that they were fully loaded. Operating costs favoured the large mainframe as opposed even to its medium-sized cousin.

This was a time when large organisations created large centralised computing departments or even separate computer service companies, serving the needs of all the operating units of the organisation. Smaller organisations found it advantageous to use the services of a third-party bureaux for similar reasons.

But with computer systems down to a fraction of their former cost, it is now becoming acceptable to have a small computer system which may only be used for more than a day or less perhaps. How many of us use our cars for more than an hour or two out of the 24 hours they are available for use?

For straightforward smaller-scale computing jobs the economies-of-scale argument in favour of the bureaux is wearing a bit thin. There is perhaps no better example of this than in financial modelling, where an Apple computer with the VisiCalc package can be purchased for little more than what was formerly the cost of a terminal.

The change in the relative costs of labour and machines have perhaps dealt a crueller blow to bureaux than similar sized in-house installations, since they have to recover their operating costs commercially. True costs can be hidden from the user of an in-house system, since they probably only pay for their computing services in "funny money", and many operating costs are absorbed as part of the general overheads of the organisation.

This means that bureaux which charge their customers on the basis of CPU time, lines printed etc, have to make costs so high that they seem unrealistic when the user considers what the actual resources themselves cost.

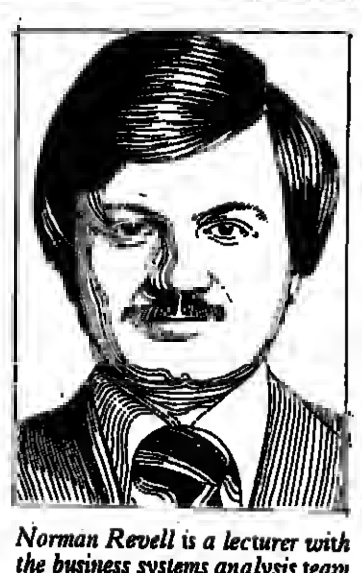
Returning for a minute to the launderette, it is the "service-wash" that bureaux must provide, where the application should be sufficiently attractive to cover the bureaux staff costs.

First-time users might seem to be a good case in point here, except that once they have gained some experience of running an application at a bureau then there is nothing to stop them purchasing their own system.

There is one area that the bureaux will always be able to answer a need, and that is for one-off jobs, or very large scale jobs which are run infrequently which would either be disruptive or be difficult to accommodate in an in-house installation. Even the lure of special software packages is likely to be short-lived, since if a package is successful it is only a matter of time before someone produces a small systems version, witness VisiCalc, an application area previously thought of almost as a classic bureau service.

Anyone who pays their own phone bill is fully aware of the costs of maintaining a connection for even a small amount of time each day. The users of online bureaux, either interactive or batch RJE (Remote Job Entry), must carry this overhead before they actually perform any computing.

An hour a day or so can easily mount up to £1,000 p.a. or more for a local connection. This is not much better where work is delivered to the bureau via post or other delivery services, and furthermore these costs are likely to continue rising since they have a high labour component. There is some hope at least that new technology will stabilise or even reduce the costs of online transmission.



Norman Revell is a lecturer with the business systems analysis team at City University, London. He is a consultant with IBM and several other companies.

So, where does the future lie for the bureaux operating with these built-in economic disadvantages? Clearly, their offering must be well differentiated, the peak load example already mentioned is a case in point. They can capitalise on their experience when dealing with inexperienced and first-time users by supplying well-packaged standalone systems with the possible option of later connection to a bureaux mainframe as a growth-path, provided the applications support is available at a high enough quality from bureau staff.

They should adopt a more flexible attitude towards the vexed question of program ownership, where programs written by bureau staff and run on the bureau's own computer could be later offered for conversion at reasonable cost for the user's own computer.

Finally they should prepare to link in the latest networking technology, both as a means of reducing direct transmission costs and as a means of being part of a wider spectrum of added-value network services including, for example, viewdata systems.

Norman Revell

10 YEARS AGO

From Computer Weekly of April 27, 1972

THE world's first delivery of the IBM 370/135 is made to Stanley Tools in Sheffield . . . ICL sells a 1906S system — the biggest computer currently produced in Europe — to Brunswick University in Germany, which pays £1 million for it . . . ICL Deutschland acquires Consolidated Computer GmbH . . . A new data systems division is formed in the UK by Swedish Ericsson Telecommunications, offering tailor-made comms systems.

FOCUS

The menace of the personal computer

BATTLE lines are being drawn up, with micro dealers and DP management manning the strategic barriers. So far, the micro skirmishes have been limited to verbal abuse but further selected developments from the front lines are clearly on the cards.

In the UK, warning shots have already been fired by such industry authorities as Ted Cluff of the IDPM. In suggesting that there is considerable room for improvement in the way the micro sales marketplace is being operated, he is calling for DP management to play a bigger role in company micro management.

Such DPM enthusiasm is not, however, shared by the micro sellers, several of whom have stated that many DP managers have strong vested interests in keeping personal computer network systems out of the company.

Meanwhile, in the US, the latest assault has come from an Apple representative. Speaking at a recent Computerworld conference, the Apple product manager attacked both company and computer management for trying to control personal computing within their organisations. Limiting personal computer development was seen as being as pointless as restricting the use of the telephone.

According to Apple, what the micro user needs is less documentation coupled with more operational instructions. Such an interesting approach drew the inevitable response with a DP specialist observing that it was essential for the DP team to retain control of emerging micro technology.

Confrontation is close and micro dealers are increasingly promoting their wares as being ready and easy to buy, program and use. Meanwhile, such industry bodies as the NCC are actively promoting educational and training teach-ins for micro users, covering likely pitfalls and practical expectations.

Right now it would seem that the responsible trainers are unable to keep pace with the booming high street micro stores and as a result many micro users, far from realising the full potential of their new system, are left floundering with such operations as getting data in and out being a major challenge.

Unfortunately, an opportunity to inform and educate business personnel may have been missed. The new BBC television series, The Computer Programme, belatedly being shown at a reasonable viewing time, appears to be taking a rather jokey approach to microcomputing.

Had the BBC's programme researchers made contact with a DP professional, the emphasis of the series would have shifted from that of the Pony Express approach to a realistic demonstration of such micro packages as MicroModeller or VisiCalc, or the limitations in attempting to run a full-scale stock update system.

For the DP professional, the arrival of the much heralded IBM Personal Computer could be welcome news. Standards will be established, documentation maintained and servicing undertaken. The DP manager will also expect to benefit from the association with the IBM logo.

Users on their part will take for granted that the IBM micro will be the responsibility of the DP team, an attitude not always present where such names as Pet, Apple or Acorn are involved.

The IBM micro arrival will seal the credibility gap between the vendor, user and DP professional. With luck hostilities will cease and the menace of the micro intruder be counted out.

Alan Simpson

DOWNTIME

Some things go from bad to verse ...

A NEW collection of poems about London has just a little in common with computers — the fact that Information Technology Minister Kenneth Baker edited it. But what has he in common with rhyme and metre, he whose mind is cluttered with facts and figures?

Well, he has already compiled an anthology of satirical and abusive verse called I Have No Gun But I Can Spit.

But the more cynical among us would say that he was chosen to edit a book as important as "London Lines" because his wife is Chairwoman of the London Tourist Board.

But never mind, London Lines does contain some little classics. There is an ode to Centre Point ("barren phallus of egg-boxes without eggs") for example, and a poem about the Post Office Tower.

Of course the work would not be complete without a poem from Mary Wilson, wife of ex-premier Harold, reminiscing about her days at No. 10, ("The Chinese geese are honking in the Park!" she writes).

Let me finish, if you please, on a serious note, with a little quiz prompted by a verse from one of the poems entitled These are Facts, by Ruthven Todd. What grave contemporary events does it seem to allude to?

People are more than places, more than pride;
A million photographs record the works of Wren;
A city remains a city on credit from the tide
That flows among its rocks, a sea of men.

Senders of the most imaginative entries will be invited to partake of lunch with the entire editorial staff of Computer Weekly — so long as they are prepared to foot the bill.

Key to good PR

WHEN Arthur C. Clarke was involved with the filming of his novel 2001: A Space Odyssey, he expressed a belief that the public relations departments of Hollywood had a special key fitted to their typewriters which, when depressed, printed the phrase "Never in the history of motion pictures", thus saving the copywriter much tedious and repetitive typing.

In recent months, Chad has noticed an alarming trend within the computer Press. Stories of startling new innovations and announcements by certain manufacturers are appearing, sometimes months before the company itself is aware of them.

While investigative reporting is to be applauded, it is tempting to think that some journalists' typewriters are fitted with a key which causes the machine to type "ICL refuses to confirm or deny this".

Legends in their own minds

THERE are many consumables well known to us through the symbols their advertisers have cultivated. A white horse for a well-known brand of whisky, or a beautiful woman for an equally well-known make of cigar.

Now two foreign computer companies are trying to establish their metaphors in our minds.

One is Sord of Japan (let me just comment in passing that the acronym Sord, from SOftware haRDware, is as perfect an example as you could wish for of meaning sacrificed on the altar of rhetoric).

Sord's symbol is a block of ice, which is crushed in a TV commercial to reveal a Sord computer. Then comes the announcement: "The ice age of computers has come to an end."

The idea conveyed is that the computer, for years frozen away from ordinary folk, has at last been emancipated by Sord.

US company Advanced Micro Devices has coined a yet more devastating image. Its macho metaphor is a boxing glove, which appears in pictures suspended in the execution of a left hook. Accompanying the glove is the message: Performance is Everything (But Style Counts).

Human touch

SOMETIMES it's the little things that make life worthwhile. Until recently, the only way to hold a conversation with one of my colleagues was to use that horribly dehumanising instrument, the telephone.

But following a simple office reorganisation, we can now hold an intelligent discussion on the state of life, the universe, and everything else by simply shouting at each other.

This new direction in office communication has the added benefit of keeping the entire editorial staff awake.

Marvellous machine

THE Incredible Hulk is not very good with figures. Small wonder, then, that the Hulk's employer, Marvel Comics, has found it expedient to buy a computer to work out its costing requirements.

But wait. Dr Who is also on Marvel's books, and one should have thought a few costing calculations would be nothing to him.

However, a Marvel spokesman denied this: "His Tardis is usually out by years, so we could never rely on the accuracy of his calculations. So we bought a Star Applicator system . . ." (continued in 1994).

All at sea

ONE of the German directors of electronics colossus Siemens came over for a conference recently, and peacock proud of his English, confidently bade a taxi driver to take him to the "house of Siemens".

Can you wonder when he ended up wandering like a minstrel in the maze of Tilbury docks wailing "Where is house of Siemens?"

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, April 29, 1982

Josephson freeze

IBM seems to have caught a cold in its experiments to produce ultra-high-speed switching circuits, using Josephson Junction technology. After a 15-year research and development programme using the liquid-helium-cooled microelectronics technology, IBM is no closer to mass producing a product.

At a recent meeting of stockbroker analysts in New York, IBM indicated that the technology would not figure prominently in its medium term plans (see page 5).

The failure of IBM — the only company considered able to plough the kind of resources necessary into Josephson Junction technology to make it commercial — gives clear warning of how chancy this area is.

In its experiments with the new technology, IBM found that the circuits switched at speeds between ten and 100 picoseconds, about 10 to 100 times faster than the chip technology, in its largest mainframes.

However, the problem with Josephson Junction is that it works best at temperatures approaching absolute zero. A breakthrough in cryogenics (supercooling technology) would have paid handsome dividends, but that breakthrough still seems a long way off.

Meanwhile, the world outside IBM has proceeded with less ambitious technology research programmes, particularly research on Gallium Arsenide (GaAs) technology.

GaAs circuitry also requires cooling but not to such low temperatures, enabling use of liquid nitrogen, which is a tried and tested technique.

Furthermore, GaAs switching speeds are getting faster. Fujitsu claims to have invented a device which will switch at 17 picoseconds, consisting of a Gallium-Aluminium-Arsenide layer implanted with silicon and bonded to another layer of GaAs.

This device, called the High Electron Mobility Transistor, will need one-tenth of the power of conventional GaAs circuitry.

The fundamental remaining problem of GaAs circuitry, is that it is based on a compound more sensitive to heat treatment and other processes than an element like silicon. But this now appears closer to finding a solution than the Josephson Junction problem.

For IBM, the lesson will be a costly one.

Security danger

THE present government's woefully inadequate proposals for data protection legislation have been roundly criticised by all sides. MPs from all parties, senior industry figures, civil liberties campaigners and professional organisations are unanimous in their condemnation.

By far the most serious criticism is that concerning the provision to allow security and police forces unrestricted and unmonitored access to every computer databank contained on the government's register.

This, in the words of one senior industry figure, drives a solid wedge through the rights of the individual as far as the security forces are concerned. While no-one would want to hamper these organisations in their role of protecting the security of this nation, it is essential that they come within the ambit of data protection legislation.

This could be achieved, quite simply, by giving one person on the staff of the proposed registration authority responsibility for security clearance. He or she would be the only member of the proposed staff of 20 who was privy to security secrets, and this person would judge whether legislation was being breached. If there was no contravention the matter need go no further.

This, of course, is only one of the areas where the proposals fall down. The independence of the registrar and his staff, the absence of any mention of manual records, and the lack of enforceable codes of practice are all causing serious concern.

Closer attention to Lindop would do a lot to rectify these glaring inadequacies. Sadly, it seems that the government has no intention of going that way.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by former Computer Weekly editor John Kavanagh of London, who wins £5.

And the very same day, a friend rang me, howling with mirth, to say that she had arrived that morning at work to find that her processor had had an electronic nervous breakdown during the night. Its little visual display unit had switched itself on and said, "I CAN'T GO ON!".

Woman's World

LETTERS

Software protection has to be paid for

I SHOULD like to take up some points made by David Ferris and Graham Ross in an article and letter (CW, March 18) on software protection.

Mr Ross appears to be arguing against himself. He argues that protection to the source code by way of copyright would "serve against the interests of programmers and authors" since, "if you provide a specific right in law that can be the subject of litigation, then the imbalance in financial strength" between possible litigants means that individual programmers will find themselves unable to pursue "their rights, or defend themselves adequately against claims."

Surely, had he been able to adequately protect his own application package Quill, such protection rights — whatever they would have been — would be just as objectionable on the same grounds.

The financial imbalance argument can be applied to all levels of law and is, I believe, peripheral to the main issue, which is that adequate laws should be provided to allow for the protection of both physical and intellectual property regardless of the financial position of possible litigants.

If the current laws are shown to be inadequate we should campaign, not for their abolition, but for their adaptation and modification.

In the case of copyright the current Green Paper proposes that computer programs should attract protection under the same conditions as literary works and this seems to me to be a reasonable step to take, particularly as copyright has such international reciprocity. So far the international software community has felt that a right to prevent copying is, in most cases, adequate as propounded in WIPO Publication No. 814(E).

If the software community want more expansive protection to protect the *application* of a package then there is a price to pay, for there must be some method of deciding what rights should be granted and the extent of these rights.

The current system which can be used to define such rights, in certain circumstances, is the patent system as noted in Mr Ferris's article.

However, because time and skilled effort is required to decide in each case if the application warrants the granting of these additional rights, it costs to obtain them.

As a Chartered Patent Agent I believe in the system of granting monopoly rights and actively campaign that innovations in applications software deserves to be accorded monopoly protection. However, associates in the software field tell me that they do not want extensive rights which are expensive to obtain. It is an old adage that you get what you pay for. You do not have to pay for copyright protection, and therefore you should not get substantial monopoly rights.

If the software profession is waking up to wanting more extensive rights it will have to accept that it will have to pay to get and preserve those rights. The current patent system, as Alister Kelman is quoted in David Ferris's article as saying, requires to be overhauled if it is to apply to software generally, since the Quill application would probably be held not to be a patentable invention as it is (a) a method for doing business or (b) the presentation of information.

The BCS Specialist Groups on Law and the Technology of Protection of Software held a joint meeting to consider the Green Paper on copyright reform and the recommendations of that meeting have been published in Computer Bulletin March 1982. Observations on these recommendations would be welcomed.

R. J. HART

Chartered Patent
Agent,
Liverpool.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Argus instructions communal

I WOULD like to correct an erroneous statement (Op Spot, April 8), in which you state that the Argus M700/20 military computer has a different instruction set to the Argus 700 civil version.

The Argus M700/20 has, in fact, a civil 700 instruction set, augmented by a small number of additional instructions associated with input/output using the Eurobus bus structure, the use of which is required by MoD as part of its military computer policy. Furthermore, a large amount of effort has been expended to ensure that the civil Argus 700 instruction set is executed identically by the military M700/20.

Instruction set commonality is one of the foundation stones of the military Argus philosophy in that it enables a large amount of software, previously in existence for the civil range, to be utilised by the military version.

D. E. STONE
Manager

Computer Sales
Department,
Ferranti.

Liveware File by Don

Oxford enhances CICS

THE article called IBM Backs CICS Redesign (CW, April 22) says that IBM is supervising an Oxford University project to redesign the system from scratch.

As Dr Thorenson of Oxford Programming Research Group has said, his objective is to produce a formal definition of the CICS/VS program products using mathematical techniques; the group has not previously applied these techniques to large-scale commercial software.

Since CICS was first introduced in 1968, its functional capabilities have been continuously enhanced through successive releases. The collaboration with Oxford University is a means of developing more powerful tools to assist in this task, not the beginning of a radical redesign of CICS.

T. R. BIRBRIDGE
Communications, programming, development manager

IBM UK Laboratories.

هكذا من الأصل

OP SPOT

The problem is, how do you cross the chasm without paying the troll?

by Andrew Thomas

WHEN I was but a humble operator in the good old days, there was a camaraderie between operators -- all for one and one for all — which I imagined had died since operating became less of a craft.

Well, you've made an old operator very happy. When I asked you for help in the April 1 edition, I had no idea of how you would rally round a fellow operator in distress. You will recall that I published a letter begging for help on a tricky point of the game of Adventure.

Your response has been so great that I was worried for a moment that I might have rashly offered money in return for suggestions, but a hasty re-read of the page in question quelled my fears.

The problem cited was how to explore the emerald room without a light source, and what one is supposed to do with the Spellmaker Today magazine.

The consensus of opinion is that the magic word PLOVER can be used to move between Y2 and the emerald room, and that North East from there lies the dark room which contains the platinum pyramid.

> Ahar Jim me boy,
>
> Reference yourn article (CW April 1) "Operator in distress; for 'ee to get yon booty from yon dark room, 'ee needs to take yourn lamp in therel! Try saying "PLOVER" at Y2 and see where 'ee ends up!
>
> As for yon Spellmaker Today — well, Jim me boy, 'ee needs to leave it in a specific place to get maximum points.
>
> XYZZY and best of luck me hearty!
>
> Long John Pugh (The pirate in the building at the end of the road). PS I 'ope 'ee 'aven't found my chest yet.

The magazine described by me as Spellmaker Today appears also to rejoice in the name of Spelunker Today. Geoff Richards of Sutton claims this to be an American term for a potholer, and who am I to gainsay him?

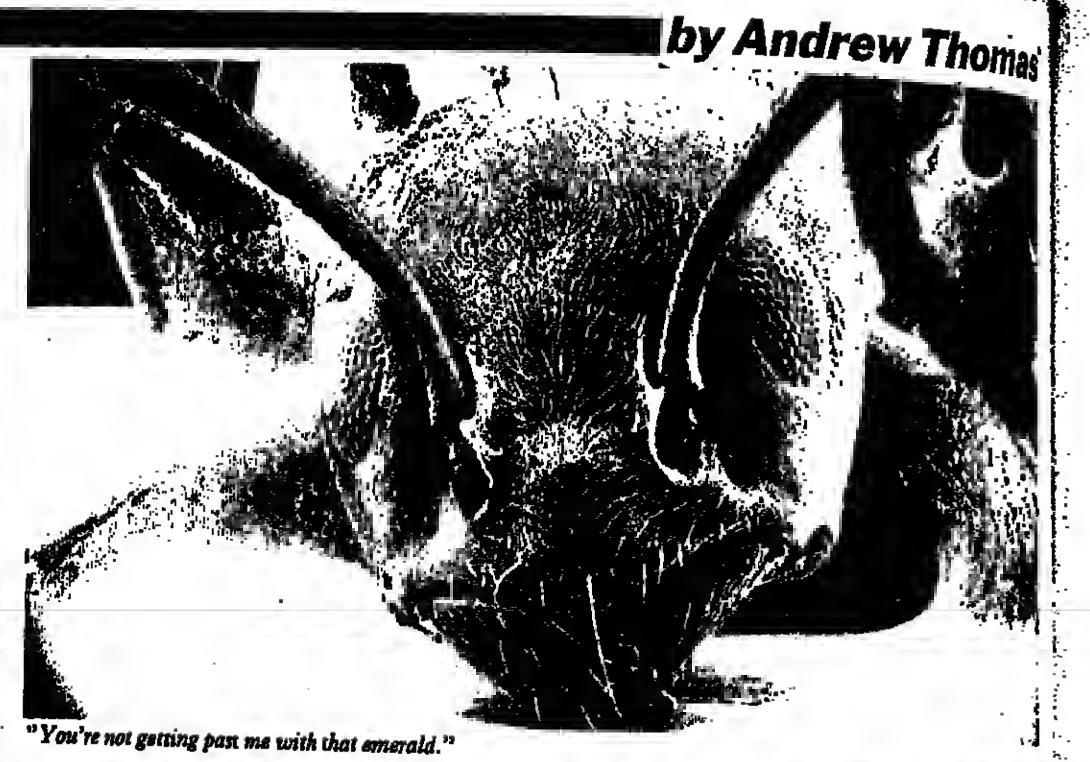
Whatever the publication is called, it should be left at Witts End in order to gain an extra point. Rob Cottrell from Manchester advises that the word of power PLOVER does not allow the emerald itself to be transported back to Y2.

A letter from some poor soul called The Dwarf (aren't some parents cruel?) advises that the best way to get the emerald out is to take it through the narrow tunnel, leaving the lamp in the emerald room.

Two of the letters ask for help with different problems. Michael Slattery of Whitley Bay urgently needs to know how to cross the chasm without paying the troll before you have the bear.

Rob Cottrell has moved on to greater things — Dungeon, the sophisticated version of Adventure (blimey, I had enough trouble with the easy one) — and reckons modestly to have got every point available except one. An autographed photograph of me to the first person to come up with the correct way to open the egg.

Right, let's have some suggestions for those two. Thanks to everyone who wrote in, space doesn't permit me to publish all your letters, or even names, but I feel I ought to let you see the first one that came in. Not because it's better than the others, but for the simple reason that it's by far the silliest.



"You're not getting past me with that emerald."

Racal improves working conditions

I AM rapidly discovering that whenever I make an informed statement on the state of operating, someone, somewhere lets me know that they are doing things differently. Well, at least it proves I am human.

So when I say something like "Operators face a shift to 9-5 working", you can be sure that someone will reckon I am making it all up.

John Bray is a senior op at Racal Management Services in Bracknell, running an ICL 2976 under VME/B. When he read my story on the increasing number of sites moving towards a prime shift-only operation, he felt obliged to tell me that, for his site anyway, I had the situation somewhat awry.

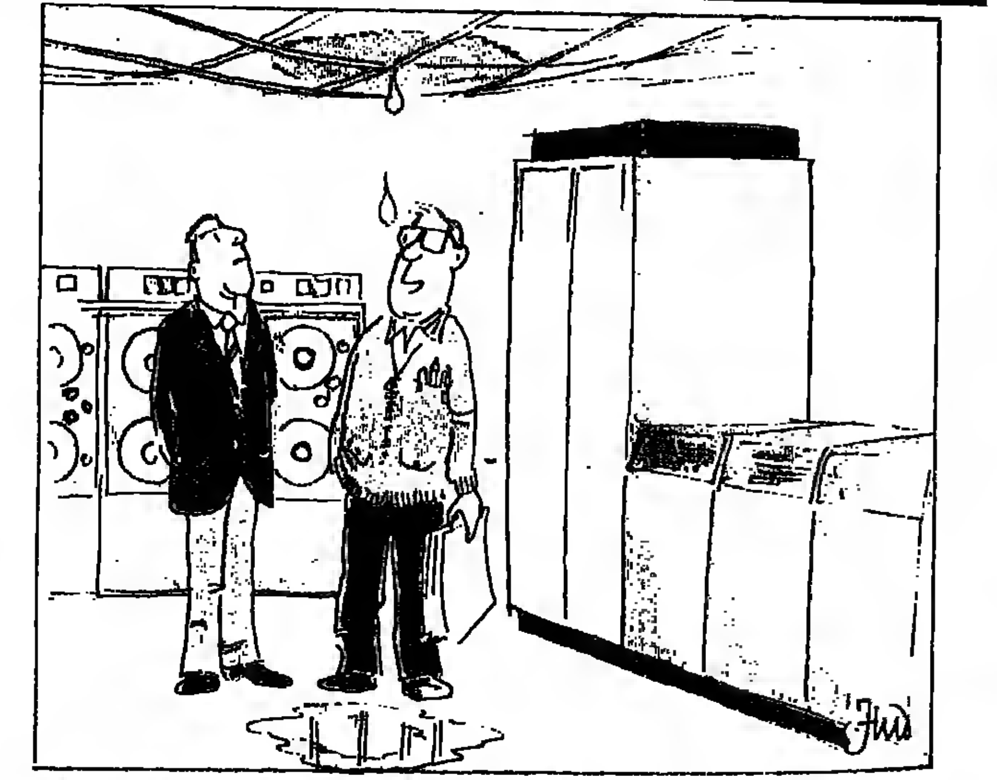
Racal is in the process of moving from a three-shift system to four shifts, working 24 hours a day and providing weekend cover too. To provide the staff for the extra shift, the company is amalgamating the operations and data control areas.

The data control clerks will become known as trainee operators (a step in the right direction, I am sure you will agree). The shift leader will be responsible for the smooth running of both the machine room and the data control area, which leaves the senior ops more chance to improve their own management skills.

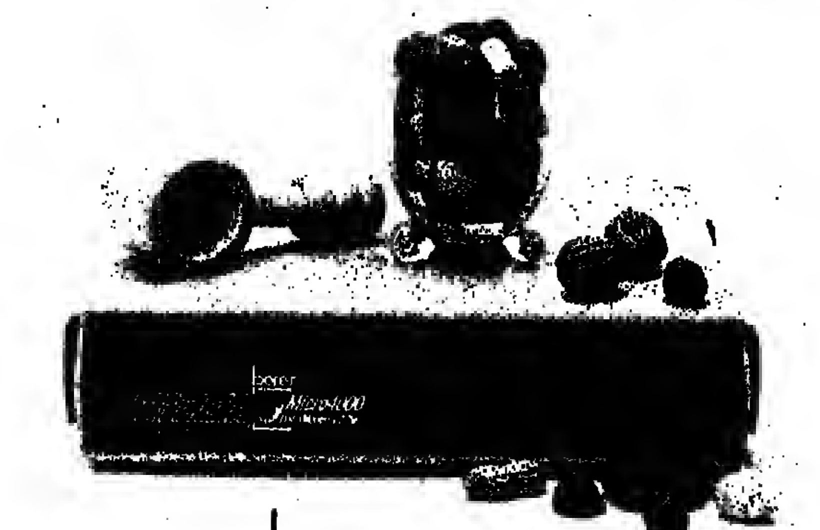
The big change is planned for next month, after initial training of staff has been completed. All shift workers will benefit financially from the new arrangement, the shift allowance being increased from 22% to 28%.

What shift system does your site work on? Do you like it? Do you get enough shift allowance?

Some of you must be unhappy about certain aspects of your working conditions. Despite my name at the top, this is your page, so if you want to gripe about something, let me know.



"I knew it was a mistake putting the 3081 on the first floor."



Sticky solution

By Colin O'Keefe

THERE cannot be too many homes in Britain that have never received some communication from some large organisation on a subject which has long since been of very little interest to them.

I am sure you know the type of thing — "Dear Tenant", or "Dear Subscriber". These are inevitably blamed on computer error, which does not reflect too well on the systems staff involved, but it sometimes has a much simpler explanation if the dreaded sticky label has been used.

The labels are designed to peel off the backing sheet easily, which sometimes causes them to jump off of their own volition while being printed, and get stuck inside.

The better operators will check for missing labels and collect any which have strayed, but if this is not done as soon as the print run is finished, there is always the risk that labels from one run may get mixed up with those from another.

Might I humbly suggest that ops should adhere (!) to the following when printing labels:

1. Check the printer before starting the run.
2. Check the printer immediately the run finishes, and if any strays are found, compare the formatting to ensure that they belong with that run.

Spiking power supply

IF there's one thing computers hate, it's having to share a power supply with such menial devices as lifts and heavy plant. Any sudden demand from such machines is almost certain to cause the computer to stop in a sulk.

The most pampered mainframes are nourished through motor alternators, which smooth out any spikes by flywheel action.

DISASTER

Selby Screws and Industrial Fasteners had such a device. SSIF assumed that the alternator company was carrying out routine maintenance on the unit, and the alternator company assumed that SSIF maintenance staff were doing it.

One night, the computer went down. The shift leader couldn't see any obvious faults, so he reloaded the system. All went well for a few hours, but then the machine stopped again. Engineers were called out, but no fault could be found.

This stop/start sequence of events continued for several days, until someone had the bright idea of checking the alternator. The hapless device had not been lubricated since its commissioning, and was squeaking in a most disconcerting manner, sending to the computer room the very mains spikes it was supposed to suppress.

Someone I once worked with had an accurate, if somewhat trite, epigram to describe this kind of event: "Assume makes an ASS of yoU and ME.".

DPM who's seen it all . . .

Sir,

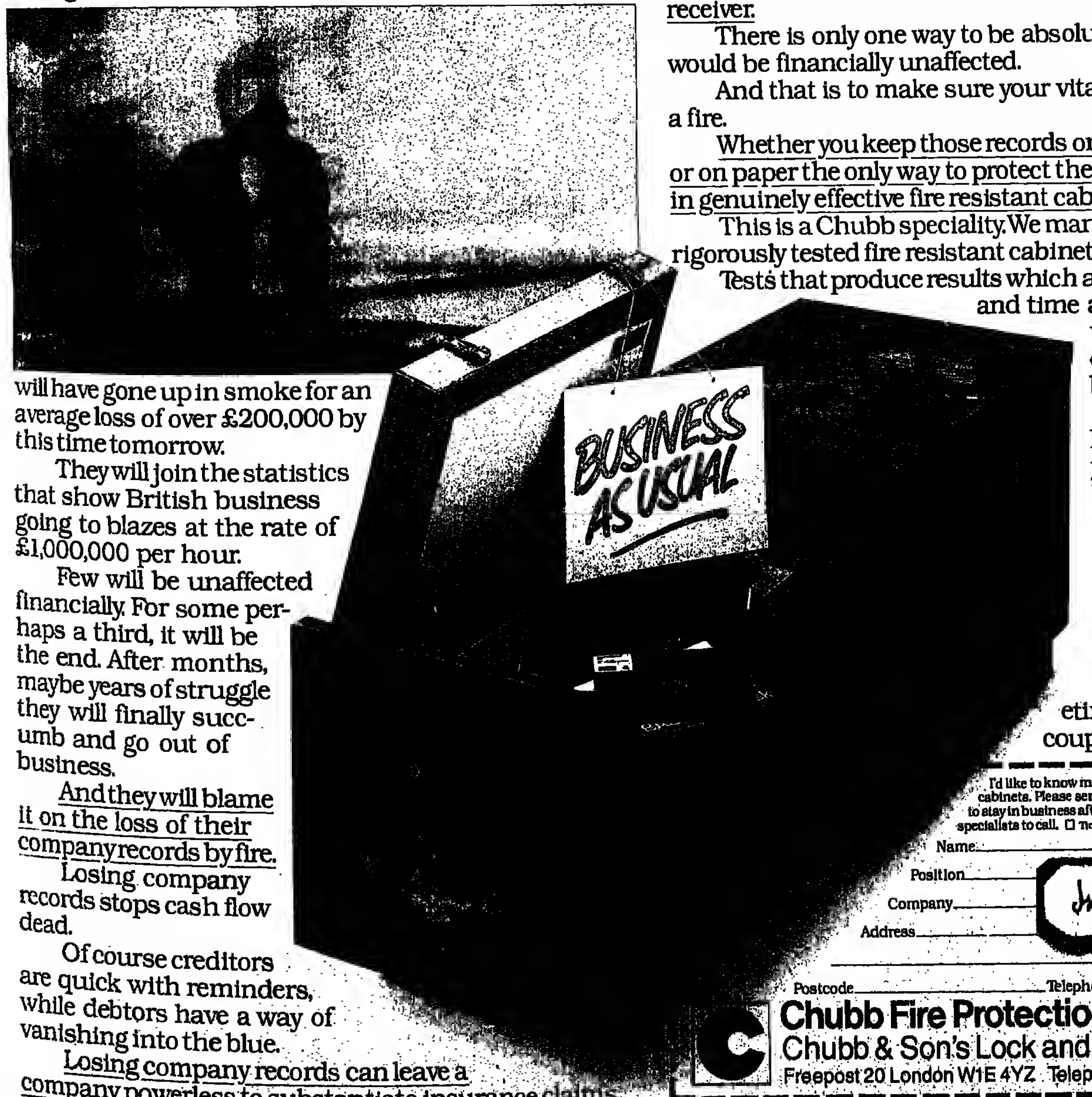
I HAVE just been catching up on the last two months' Computer Weeklys, and read your appeal from March 25 calling out for the name of a single DPM with ops experience.

Well, our DPM at ADT Network Services in London is such a man. Rumour has it that he worked the machines when they still had valves. He is in fact responsible for operations throughout Europe and is one of the top guys here in Great Portland Street.

I personally would be interested to hear more about the possibility of raising an operations union. Ten per cent shift allowance? There must be a way . . .

KEVIN BURDEN
London NW10

Anyone have any thoughts on a union for operators? Let me know. A. T.



Kids driving you mad? Send them to programming camp!

by Philip Hunter

CHILDREN could be in for a treat this summer from the latest American import: computer holiday camps. These aim to provide a blend of adventure and computing in an informal arrangement of seminars, practical sessions, and glorified play times, with the emphasis always on fun.

For parents they promise to prove an ideal repository for bored children. And if the great enthusiasm shown for recent schools' computing competitions is any precedent, they will be equally popular with children.

Programming is fun, as demonstrated here. These two boys are typical of children who will learn about computers at holiday camps this summer.

Prices of around £150 a week for full residence sound cheap compared with the often ludicrously over-priced courses available from the small teaching consultancies.

The biggest adventure holidays are organised by Dolphin Camps, which is making 1,500 places available at two non-residential sites near London, and a residential one in the Lake District near Carlisle.

The residential camp will offer a catholic collection of outdoor activities like riding, sailing and hill walking at £118 for a seven-day week. The computing classes are optional for an extra £30 per week.

At the day camps, however, the computing courses receive a £15-a-head weekly subsidy from the Department of Industry, so they will cost no more than the activity classes – £70 a week. A fleet of coaches will be laid on to ferry lucky children from Greater London to the nearest of these two day camps, either Mill Hill School or Coombe Bank, Sevenoaks, Kent.

Day computer adventure camps are also organised by Aldenham School in Elstree, Herts and again coaches will be provided. Here the basic cost, inclusive of grub, is £74 per week, but since there is no subsidy, the computing classes are £20 a week extra.

Great generosity has been bestowed on the camps by microcomputer manufacturers. Acorn has agreed to lend 120 Atoms to Dolphin, while Texas Instruments will lend 42 to Dolphin and 25 to Aldenham. "But Texas will lend us more if we need them," says Barbara Pomeroy, one of Camp Aldenham's organisers.

Dolphin Camps are aimed at 11-17-year-olds, but camp organiser Andrew Colin says they are open to anyone interested. As well as the microcomputers, there are robots and musical synthesisers, and the courses are loosely organised to provide tailored tuition for each group on various topics. The aim is for pupils to finish a project within a week.

"This is not just another holiday hands-on course," says Colin. "The children are coming here for a good time."

Camp Aldenham is strictly for younger children aged 5 to 13, with fundamental computing courses being offered to those over nine. Daily two-hour sessions will be available to 75 children a week – more if demand is there.

Comp members will be able to buy the computers they learn on at a big discount if they catch the mania.

> ‘Beware, computer games can be addictive’

Holiday camps with full residence are also offered by Southampton University, but these are aimed as much at business people as teenagers. Advice on DP matters will be available to the self-employed and small businesses from a management consultant.

Special courses also will be provided for groups sharing a common interest, such as dentists or journalists.

Prices at Southampton stand up well to exposure: £115 per week for self-catering board, or £165 for half-board. Any dependants not sitting the course are offered half-price accommodation.

Adventure is not formally offered at Southampton, but participants have the full recreational facilities of the university at their disposal. There will be a compendium of computer games on offer, but against these camp members are cautioned: "Beware, they can be addictive."

The most serious and expensive of all the summer classes are those offered by the London Computer School at its site on the campus of Middlesex Polytechnic at Barnet, Hertfordshire. Here there is no adventure. Seven-day-week courses cost £264.50 for full board, or £195.50 for day pupils.

Five-day-week courses are also available for £195.50 full residence, or £149.50 non-residence.

The courses here are aimed at people over 13 and provide a firmer background in computing than the other Camps.

Courses are based on the Commodore Vic-20 and split into three levels: elementary, intermediate and advanced. As with the other camps, teaching staff is drawn from universities, polytechnics and schools, with trained demonstrators and assistants to help with practical sessions.

SATO . . . older business people find Basic difficult to learn, he says.

Pips for the uninitiated

PIPS, the language which has been storming the personal computer market in Japan for three years, has been formally presented to the UK computer public for the first time. The language was developed by Japanese company Sord Computer Systems for business users with little computer experience.

Don Martin, director of Sord's UK agents Exleigh Business Systems, says Sord claims that after three days, a naïve business user should be able to develop his own systems with the language.

Pips, advertised as "the programming language that needs no programming", combines the number crunching ability of Basic with record-keeping, report generation, and powerful sort and search facilities.

A book, Pips Revolution, written by Japanese management consultant Junichiro Nishi and published by Sord, takes some trouble to discredit Basic as the ideal language for small business machines.

Nishi gives an example of a ten-line Basic program for producing a list. The same job can be accomplished by just hitting a single "L" for list key in Pips.

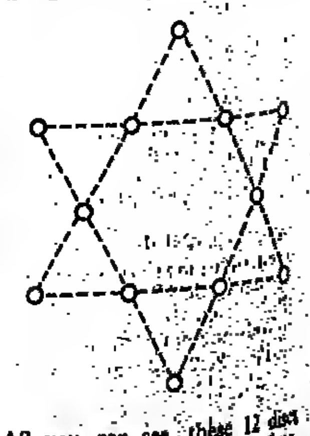
Yet comparing Pips with Basic is like comparing Fortran with machine code – they fulfil quite different needs. In the appendix of the book, Nishi seems to recognise this when he spells out what he sees as the main rivals of Pips. These are the so-called program generators and the VisiCalc family of financial modellers, ideal for asking "What if?" type questions.

In Japan, he writes, a battle royal has developed between Pips and VisiCalc. This war is being won by Pips, he claims, partly because the Japanese version of VisiCalc is inadequate and some companies are still using the English language version.

According to Exleigh training manager Patrick Warrick, described as the leading Pips expert outside Japan, this comparison with VisiCalc is meaningless. "Sord has done itself a disservice by raising the point," he says, adding with a pinch of salt that the only valid comparison between them is that the Pips disc weighs a little more than the VisiCalc one.

The strengths of Pips, says Warrick, are its easy data entry and the excellent sort and search facilities. VisiCalc type applications can certainly be written with Pips, but there is no direct correspondence.

PUZZLER



AS you can see, these 12 discs form six straight lines of four-discs-in-a-row. This week's problem is to move just four discs to new positions, to form seven straight lines of four-discs-in-a-row. See page 47 for solution.

SPL appoints two industry directors

SPL International has appointed two directors at its industrial division based in Manchester. Ron Barker becomes director of sales and Dr Nigel Cockle director of Manchester operations.

Barker joined the company two years ago as sales manager of the industrial division. He previously spent 10 years in project engineering, management and sales support at Honeywell's System Centre in Hemel Hempstead. He also spent three years working at ITT's message switching division.

Dr Cockle joined SPL from Redifon nine years ago. He moved to Manchester when the industrial division's office opened there in 1977, to work mainly in the chemical and plastics industries. He is a member of the BCS.

Promotions at business information specialist Dun and Bradstreet for Graham Lord (left) and David Anderson (right). Lord, formerly an account director is field sales manager, directing six accounts executives covering an area from Buckinghamshire to Scotland. He has been with the company for four years. David Anderson, who joined the company's Manchester office 15 months ago as account manager becomes account director responsible for the public sector. Seated between them is Northern region sales manager Bob Whittaker.

■ **Ian Mawdsley** has been appointed sales manager of Oceanic's scientific and technical division. He was formerly Northern Europe sales manager at Tektronix.

■ **Michael Kingston** has been appointed sales manager at Cole Electronics. He was formerly with Initial Automatic Services, where he was development executive.

■ **Stephen Roberts** has been named managing director of Johnson Systems (UK). He was previously marketing manager for the company.

Consultants in CSA consortium

BRITISH Defence Software, the consortium formed to bid for major NATO software and systems contracts, has been joined by Stephen Howe Consultants, an 11-year-old company which markets turnkey systems, software, and systems engineering to defence and industrial clients in the UK and abroad. It also provides technical consultancy.

Other members of BDS are CAP Scientific, ICL, Leasco Software and SPL International, all members of the Computing Services Association. A prime target is the Air Command and Control System (ACCS), a project worth £1 billion.

On the board

CTL's operations manager Bill Driscoll has been appointed a director of the company. Driscoll has been with CTL since August last year, and is responsible for manufacturing, personnel management services and quality functions.

Driscoll joined CTL from the York Trailer Company, where he was the group's manufacturing director.

Electronic office boss

DATAPOINT UK is stepping up its drive into the electronic office market with the appointment of Hamish McArthur as business manager, responsible for sales of the company's integrated electronic office products.

His roles will include identifying new sales areas for the systems and developing contacts among potential users at senior management level.

McArthur was previously computer systems studies director at Quantum Science Corp. He claims that Datapoint is the first company to get its office system working together in a fully integrated way, and says he intends to ensure the company's leading position in this field.

New post

IN RESPONSE to high growth in demand for online database services, IP Sharp has appointed a senior specialist as European Database manager. He is Norman Hardy, who has been with the company since 1979 as marketing manager. Hardy has been in the time sharing area of the computer industry for 10 years, and will act as a focal point for European users of the IP Sharp Network.

■ **John Roberts** and **Robin Anderson**, both formerly with Counting House, have joined Westward's in-house marketing department. Roberts joins as graphics systems sales executive and Anderson is responsible for graphics sales in London and the Home Counties.

■ **Tom Brooks** has joined BIS Applied Systems as principal consultant in its management consulting division. He joins the company from ICL where his career covered programming, technical management, market development and strategy planning with end users.

■ **David Heaton** and **John Adams** have joined Nixdorf Computers as sales executives. Heaton, formerly with CMC, will cover networking and distributed processing applications between Stoke on Trent and the Scottish border. Adams, previously with Philips Data Systems, will cover Cheshire, North Staffordshire and North Wales.

■ **John Paul**, formerly managing director of HBT Trademarkets, has joined Real Time Control as director of corporate planning, with a seat on the main board. He will help to guide the company's drive into the retail point-of-sale market.

■ **Martin Walter** is the new marketing services manager at Canon's UK head office in Croydon. He was formerly with the Monitor Group. Also joining the PR department is Carol Davies, who previously worked in media and public relations in the US.

■ **Malcolm Poulton** has been appointed accounts manager, banks, at Rediffusion. He was previously with BCS for four years.

■ **Martyn Kineb** has joined LMR Computer Services as customer support executive. He was formerly with ICL.

■ **Steve Cook** has left ICL to join Danish Computer manufacturer Christian Rovsing A/S as its UK marketing manager.

■ **Fraser Sim** has been appointed marketing services executive at Arbat. He joins from ICL's financial business sector.

■ **Eric Tomlinson** has been named product support manager at Direct (UK). Previous posts have included field engineer with IBM and Burroughs and operating system support specialist with Adda.

■ **Terry Moore** has been appointed Southern regional sales manager at Hi-Tek Distribution. He was formerly with Active Electronics.

■ **Michael Carter**, formerly with Thame Systems, has joined Abba computers as sales director.

DIARY

MAY 5

Computer privacy? Branch AGM, then debate. IDPM Central London branch. Altergo Software, Imperial House, 15-19 Kingsway, London. 6.30.

Japan the Golden – threat or promise? IDPM Sussex branch. Speaker Kevin Cahill, associate editor, Computer Weekly. British Caledonian Office, Gatwick Airport, Sussex. 7.00.

Presidential address and AGM. Speaker P. D. Hall, BCS president. BCS Manchester branch. NCC, Oxford Road, Manchester. 6.45.

AGM followed by computer-based information systems (videotapes). BCS Wolverhampton branch. Room C7, The Polytechnic, Wolverhampton. 7.00.

AGM. BCS Belfast branch. Drumkeen Hotel, Belfast, 8.00.

MAY 6

Microcomputer developments in the ILEA. BCS Central London branch. Charing Cross Hotel, The Strand, London. 6.00.

MAY 17

Recent developments in cryptography by Dr Donald Davies of the National Physical Laboratory. BCS Technology of Software Protection Group. BCS Headquarters, Mansfield Street, London. 6.30. Details Simon Bisom (021) 3599 3661 ext 735.

MAY 19

Ron Adam from British Telecom on the first year's experience running SwitchStream I packet switched service. BCS Data Comms Specialist Group. BCS Headquarters, 6.00. Details Peter Radford on 01-636 5440 ext 205.

MAY 20

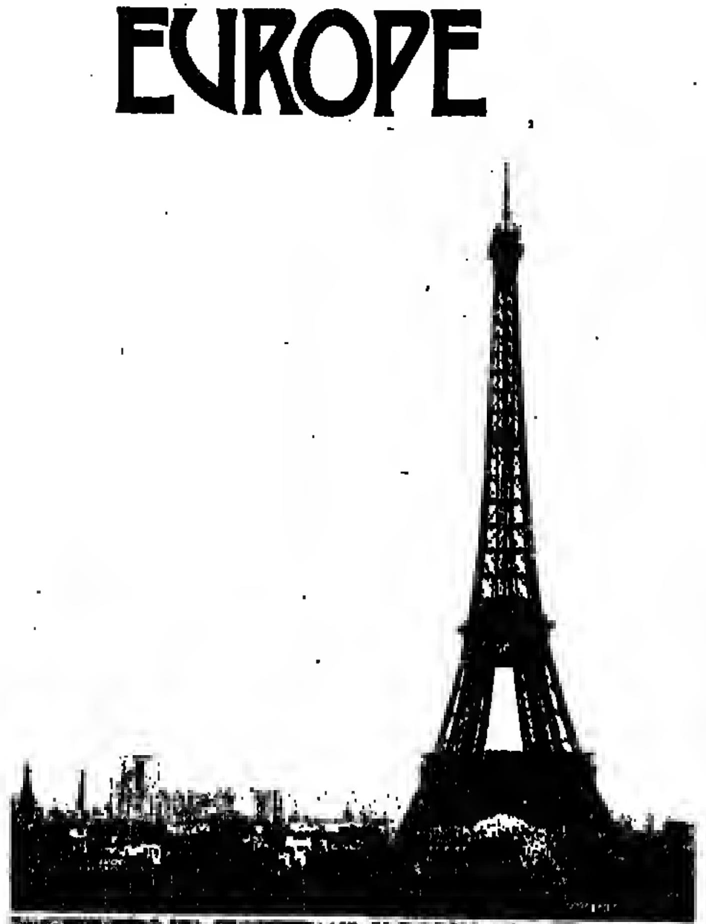
AGM and computer archive films. BCS Coventry branch. Physics Lecture Theatre, University of Warwick, Gibbet Hill Road, Coventry. 7.30

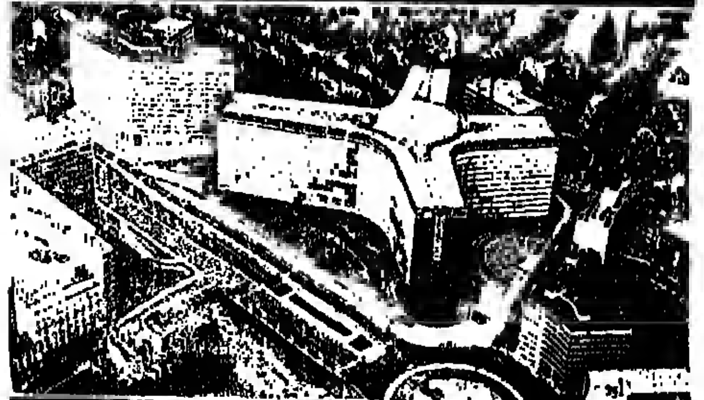
AGM, BCS South Essex branch. Access Sports and Social Centre, Eastern Avenue, Southend-on-Sea. 7.45.

AGM followed by 1982 – Information Technology Year by D Fimberg, deputy president BCS. BCS Leeds and District branch. Parkway Hotel, Leeds. 6.30.

AGM and Presidential visit. BCS Central London branch. BCS headquarters, Mansfield Street, London.

MARKET EUROPE





France uses state aid in a bid to snatch the market lead

The European computer equipment market is difficult to assess – *Boris Sedaeca talks to international market research consultancy IDC.*

ALTHOUGH the governments of the individual European Community countries have traditionally been more state-interventionist in their economic policies than the US, most of them have realised that they have to resort to the old-fashioned market economics of Adam Smith to trade outside their borders.

Most European governments supply aid in their indigenous computer industries to help them compete at home and abroad against IBM, which has learnt to fine-tune its selling efforts into overseas markets.

According to International Data Corporation, data processing revenues for Europe were over $22 billion in 1980, and IBM cornered 35% of that market. One can get a broad picture of the European market for computer equipment by extracting figures from a number of IDC reports.

France is the most energetic of the Western European countries in pushing technology into all walks of life. For instance, the government is spending massive sums to expand and modernise the national communications systems.

In addition to growing a strong indigenous industry, France also has an eye on the world-wide market. France's plan is to become one of the world's most technologically advanced nations.

Such ambitions have led to the bitter rivalry between the UK and France in the world market for videotex and teletext, says IDC. Each is claiming world leadership, and both are pushing hard at the export market.

The other European countries are not attempting the "big bang" approach of France. The West German Government, for one, is still pondering on how far the state should help companies to research and develop new products as markets shift owing to technological advancement. A certain amount of state aid is available, but the German Government has not been as directly interventionist as the French and British have been.

The UK will remain the largest market for minicomputers in terms of revenue, but is growing more slowly than all other country regions, says IDC. Nevertheless, taking into account the UK's 25% share of the installed base, the average annual growth of 18% is healthy. Heavy commercial sector orientation and the growth of the superminis have resulted in shipments with high average system values.

Lack of competition from small business system suppliers has considerably enhanced the potential of the UK market, particularly through using the commercial OEM channel of distribution.

West Germany maintained its share of shipments during 1980 in comparison to its share of the installed base at the end of that year. It was the first to experience high levels of micromini shipments, and this accounts for the low average system value. Decline in growth will be compensated by higher levels of supermini shipments, thus preserving West Germany's share of the total Western European market.

France's higher installed base average system value gives it a lower market share than West Germany in terms of units, but greater in terms of value. The supermini is experiencing very rapid acceptance in France, with the micromini beginning to achieve high growth.

Italy is the fastest growing major market at 25% on average, per annum, which raised its share of the Western European maincomputer marketplace from 8% to 10% by 1986, in terms of revenue. Two interesting points to note are that Italy is the major market for the IBM Series 1, and, as in the UK, the commercial OEM market will generate over 35% of the revenue by 1986.

Benelux is the second slowest growing market in Western Europe, due to increasing competition from suppliers of small business systems and the shortage of OEMs.

Scandinavia is experiencing reasonable growth considering that it already has a 9% share of the installed base by value. This, however, disguises a change in the fortunes of Scandinavian countries – Norway is booming while Denmark's growth has slowed considerably due to harsh general economic conditions.

High growth is being experienced in Switzerland and Austria, particularly in the commercial sector. Austria is growing rapidly in importance and OEM activity has increased significantly, even in the supermini area.

The market in Spain and Portugal is turbulent and difficult to assess. Many minicomputer vendors are competing for a small market, restricted by the lack of OEMs, especially in the commercial sector.

As in the rest of the world IBM is number one in Europe in terms of total data processing revenue earned. IDC estimates that IBM earned some $7,690 million in DP revenues out of a total DP revenue for Western Europe of $22,100 million in 1980. This gives IBM a market share of almost 35%. Its nearest rival, CII-Honeywell Bull, earned less than a quarter of that amount with DP revenues amounting to $1,719 million.

On a country basis in 1980 IBM was the number one hardware vendor in all but one of the country regions. The exception was the UK where it was pipped at the post by ICL.

In all but two of the country regions IBM has between 35% and 40% of the market share. The two exceptions are France and the UK. In France it has slightly less, with almost 33%, its main rival being CII-HB. In the UK its market share was just under 25%.

IBM outstrips its nearest competitor, CII-HB, in Western Europe as a whole by a factor of 4:1 in terms of total DP revenues earned, but it does not have the same dominant position, even when it is the number one vendor, on a country basis. This is particularly true in the top four European countries, West Germany, France, UK and Italy, where IBM faces strong competition.

In France and Italy it is less than twice as big as its main competitors, CII-HB and Olivetti. In West Germany it is approximately 2½ times as big as Siemens, its main rival, and in the UK, as stated already, it is marginally smaller than ICL.

It is only in the smaller European countries that IBM approaches a dominant position.

It can continue to expect strong competition on a local basis from indigenous manufacturers, competition which will increase in the 1980s, particularly as the European manufacturers strengthen their determination to carve a bigger niche for themselves in their own home European base, albeit often in co-operation with some of the Japanese vendors.

Digital Equipment (DEC) continues to lead in the Western European minicomputer marketplace. At year end 1980, it held some 17% of installed base, with a revenue share of some 25% from shipments during that year.

Shipment share in terms of units was slightly less than expected, but this can be explained by the thrust from the supermini products during that year. As a consequence, the average system value has reached some $60,000, compared with the total installed base average system value of $47,000.

Hewlett-Packard ranks number two in the Western European minicomputer installed base by value. Its share of units is low (around 6%) but Hewlett-Packard's high installed average system value ($85,000) gives the company an 11% share of the installed base in value and 9% in terms of total revenue.

Data General held some 11% of the installed base in terms of units at year end 1980, but with a lower average system value than the norm at $32,000, only 7% in terms of total value. Like DEC, a rise in average system value is apparent with an ASV of $46,000 for the 3,600 units shipped during 1980, giving Data General a 10% share of the market, in revenue.

CII-HB/HIS had a 7% share of the installed base in value terms, and a mere 3% in units at year end 1980. This is due to a high average system value of $91,000. It appears that the company had a boom year in its minicomputer business during 1980, achieving a revenue of $177 million and a market share of 10%.

Perkin-Elmer had a 3% share in terms of units installed at year end 1980 with a 4% share in value. The company shipped some 770 systems during 1980, generating a revenue of $60 million and a 4% share of the Western European market.

Texas Instruments had a 9% share of the installed base at year end 1980 in terms of units, but with a low average system value of only $19,000, it achieved a mere 4% share in value. IDC estimates that some 2,660 units were shipped during 1980, worth $50 million, giving Texas Instruments a revenue market share of 3%.

DP revenue in Western Europe – 1980 Manufacturers' market share

	% Share
IBM	35
CII-HB/HIS	8
ICL	6
Olivetti	6
Siemens	5

Figure 1.

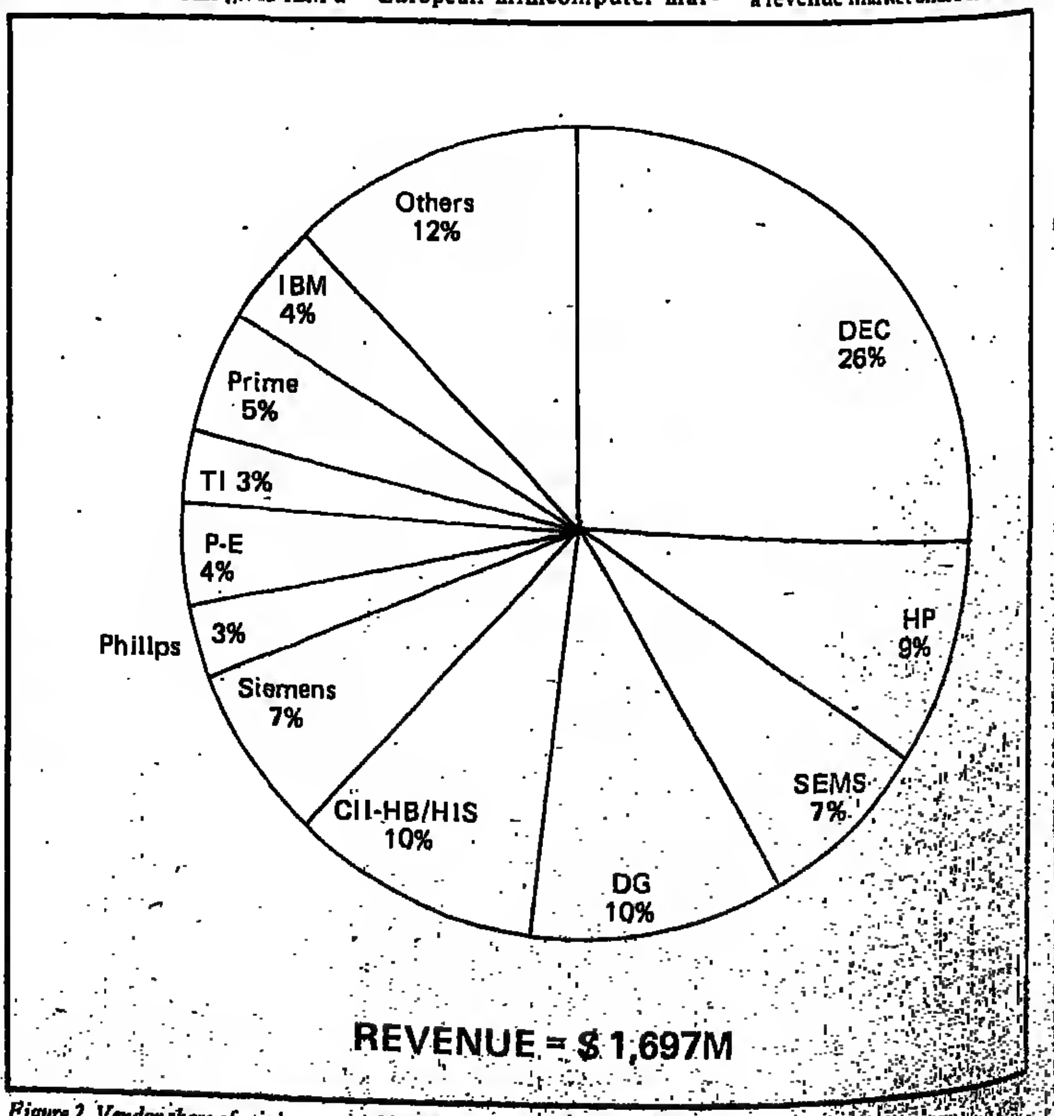


Figure 2. Vendor share of minicomputer shipments, Western Europe, 1980.

COMPEC EUROPE PREVIEW – 2

The computer services market is increasing in size, though competition is strong . . . Graham Taylor reports

Chance for the UK in a steadily growing market

WHILE shipments of small business systems in Europe grow in value by 18.8% annually, users and hardware manufacturers are making increasing use of computing service companies. Consultancy and system development expenditure is growing by 16.3% each year, with international software companies and those specialising in complex applications, such as control, energy management and communications, showing the strongest growth.

Annual growth of 18.9% in the turnkey systems market is shared by an increasing number of participants, while software product expenditures are growing by 23.5% and reflect that standard products are becoming increasingly acceptable, especially for micro business systems.

The European market for computing services will exceed £6,000 million in 1982. The sixth annual survey by the European Computing Services Association (ECSA)* forecasts that growth of 13% will continue, despite economic recession and the decline of traditional batch processing bureau services.

By 1983, user expenditure on professional services will, for the first time, exceed computer processing through strong growth in consultancy, systems implementation, software products and especially turnkey systems.

Burgeoning world markets for computing services present good opportunities for British companies, but the expertise and positioning of powerful competitors from the US, and from Europe must not be underestimated.

British companies enjoy several advantages in international trading. English is the language of the world's computer industry. Advanced technologies from the US can be rapidly incorporated into British products and our domestic market at £730 million in 1981 is the second largest in Europe.

The UK CSA's 190 members include approximately 40 companies with annual sales in excess of £5 million. These large companies have a wide spread of activities, and although average profits for the industry have dropped below 7.5%, growth has been maintained during 1981 by active export activity.

Scicon's computer service acquisition of SCI in the US makes it the largest UK company, and new turnkey activities will consolidate its lead in the German software market through SCS the German subsidiary of BP.

Export of videotex technology by Logica and SDL, and education and software products by Hoskyns, have aided their high growth rates. BIS has acquired interests in France, Belgium and Australia, and sold its banking software in more than 40 countries.

Meanwhile, small companies encouraged by government tax incentives and ready access to finance, have created a vigorous market in building and selling small business systems and software for microcomputers.

Although the inconsistent quality of the software and support limits the potential of many of these companies, significant international success has been achieved by Micro Focus with CIS Cobol, while application software from Microtrend is on sale throughout Europe via Triumph-Adler hardware dealers.

The main European competition comes from French companies, which occupied six of the top 10 places in the league table published in the ECSA report. France has the largest and healthiest domestic market, estimated at £1,300 million in 1981 and growing by 17.6% annually.

Government support through shareholdings, export aid and development contracts has helped leading French service companies acquire international status. Telecommunications projects managed by the industry include the Teletel videotex service (Steria), the Electronic Telephone Directory (CAP/Gemini/Sogeti) and Transpac network enhancements (Sesa, a leading French systems consultancy), while CISI, GCAM, SG2 and Telesystems are building and distributing databases with public funds.

French computer service bureaux co-operated closely with the French PTT in the development of the Transpac packet switched network, and processing services can be delivered efficiently to all parts of France. Products sold nationally through local sales offices include GSI's service for automotive dealers and that of Sligos for real estate agents. (GSI is France's largest publicly-owned computer service company.)

From this strong domestic position, French service companies are expanding by acquisition into other European and world markets. GSI's systematic acquisition of companies with clients in the motor trade has included Datel (Germany), Jaserve (UK) and recently VRZ, the computer services subsidiary of the association of German trucking companies.

CAP/Gemini/Sogeti, CISI and SG2 have all made major purchases in the US, and join Scicon in challenging American companies in their home market.

Other emerging European leaders include Sweden's Datema and Belgium's CIG consortium.

The main successes of US suppliers have been by software product vendors, led by Cincom for system software products and Management Sciences America (MSA) in applications software.

The adoption of MSA's Peachtree products for IBM's personal computer will give MSA an even stronger basis for European growth in the next few years, but the adaptation of application software to suit different European languages and commercial practices poses major problems for all potential exporters.

US time sharing vendors achieved only average growth in Europe last year and took no part in acquisition activity. All except IBM, Geisco and Computer Sciences Corp (CSC) were overtaken by European companies in the ECSA league table. The majority are shifting the emphasis of their services from traditional raw-time sales and business application development tools to major areas of specialisation, often involving on-site hardware.

Despite the substantial resources at their disposal only a few suppliers have been able to carry specialisation across national borders. Examples include Geisco in production management and materials handling services and ADP in auto-dealer services.

The activities of IBM, the leading European supplier of computing services, contrast markedly with those of almost all of its competitors. IBM avoids industry or discipline specialisation and focuses instead on services which complement sales of IBM hardware.

*The ECSA Annual Surveys, Quantum Science Corp, 16 Charles II Street London SW1.

● *The author is a director of Quantum Science Corp.*

	Company	Country	Owned by	RCS	Batch	SP	SS	Employees	Rev.($M)
1	IBM RCS†	US	Public Corporation	×	×			5,900	185.0
2	GSI	France	CGE/Société Générale	×	×	×	×	2,500	182.5
3	CISI	France	CEA (Government)	×	×	×	×	2,070	168.2
4	SG2	France	Soc. Générale/Private	×	×	×	×	3,000	142.0
5	CAP/GEMINI/SOGETI	France	Bank Consortium			×	×	2,730	137.4
6	GEISCO	US	General Electric/HIS	×				1,200	120.0
7	THOMSON INF	France	Thomson-CSF			×	×	1,300	117.0
8	SEMA METRA INT	France	Paribas		×	×	×	1,880	106.0
9	DATEV	Germany	Tax Advisors Cooperative	×	×			1,360	91.2
10	BOC	UK	British Oxygen	×	×		×	1,300	87.0
11	ITALSIEL GROUP	Italy	IR Government				×	1,155	86.8
12	SLIGOS	France	Credit Lyonnais	×	×	×	×	1,645	85.9
13	DATASKIL	UK	ICL			×	×	1,730	81.9
14	SCICON GROUP	UK	BP	×	×	×	×	1,450	79.6
15	DATEMA	Sweden	Nordatjeman	×	×		×	950	78.7
16	CCMC	France	Public Accountants/ Société Générale (F)	×	×			1,244	77.4
17	KOMMUNEDATA	Denmark	Government (Local)	×	×		×	1,300	77.2
18	TAYLORIX	Germany	Stiegler Hausser & Co	×	×			1,450	73.8
19	TELESYSTEMES	France	PTT	×	×		×	950	71.1
20	CIG	Belgium	Société Générale (B)	×	×	×	×	555	67.3
21	CONTROL DATA	US	Public Corporation	×	×	×	×	1,100	60.0
22	SESA	France	Independent/CGE			×	×	1,000	59.2
23	GFI	France	Independent/ Société Française (BP)	×	×	×	×	870	56.9
24	DATA CENTRALEN	Denmark	Government	×	×	×	×	1,200	55.1
25	SPADAB	Sweden	Savings Banks	×	×		×	350	54.1
26	STERIA	France	Independent/BNP	×	×	×	×	1,112	53.6
27	KOMMUNDATA	Sweden	Government (Local)	×	×	×	×	800	51.3
28	DATA LOGIC	UK	Raytheon Co (US)				×	700	46.5
29	UCC/AC	US	Wyly Corp	×	×	×	×	900	46.0
30	HOSKYNS GROUP	UK	Martin Marietta (US)	×	×	×	×	900	41.2

RCS – Remote computing services SP – Software products SS – Software services

Source: Quantum Science MAPTEK Europe. Copyright Quantum Science Corporation, 1981.

Figure 1. The top 35 computer service companies in Western Europe, 1980.

COMPEC EUROPE PREVIEW – 3

IMPORTS OF COMPUTER PRODUCTS
(excluding complete systems)

	Sept-Dec 1981 £000	Sept-Dec 1980 £000
Complete digital CPUs	126,593	44,392
Digital central storage units (separately consigned)	6,276	5,122
Storage units	54,776	23,163
Input and output units	73,782	47,345
Other peripheral units	72,220	92,121
Punches, verifiers and calculators	317	455
Other offline DP equipment	4,586	7,485
Parts of automatic DP equipment	146,110	113,939

IMPORTS OF CPUS
(by main suppliers)

	Sept-Dec 1981 £000	Sept-Dec 1980 £000
Belgium-Luxembourg	2,835	2,926
France	8,973	3,266
Germany (West)	17,728	11,523
Ireland	34,739	9,020
Italy	5,566	3,905
Netherlands	5,621	772
US	45,743	11,041

IMPORTS OF PERIPHERAL EQUIPMENT
(by major suppliers)

	Sept-Dec 1981 £000	Sept-Dec 1980 £000
Argentina	2,686	995
Austria	836	2,657
Belgium-Luxembourg	3,287	2,674
Canada	2,290	1,520
Denmark	1,199	–
France	9,071	9,340
Germany (West)	13,396	16,486
Ireland	4,614	4,279
Italy	16,030	11,936
Japan	6,862	3,691
Netherlands	6,660	3,087
Portugal	3,731	1,246
Spain	7,059	2,683
Sweden	5,763	6,333
US	112,099	92,059

UK EXPORTS OF PERIPHERAL EQUIPMENT
(by main markets)

	Sept-Dec 1981 £000	Sept-Dec 1980 £000
Abu Dhabi	257	810
Australia	1,836	–
Austria	3,071	1,195
Belgium-Luxembourg	5,596	4,919
Denmark	3,758	3,428
France	24,694	30,393
Germany (West)	30,387	42,423
Ireland	2,620	2,694
Israel	1,469	1,258
Italy	15,681	13,611
Kuwait	560	368
Netherlands	6,285	9,591
Saudi Arabia	3,562	1,545
South Africa	5,178	5,806
Spain	4,786	9,573
Sweden	6,272	5,364
Switzerland	6,118	3,459
US	7,001	5,592
USSR	1,054	516

US continues to dominate the scene, says John Aczel

Flood of imports to UK is increasing

IMPORTS are taking an increasingly large share of the British computer market, and the trend has gathered momentum in the past 12 months. For many product groups, foreign deliveries of computer equipment now account for two-thirds or more of total UK sales.

Unfortunately, it is difficult to know precisely the market penetration achieved by imports during the past twelve months because of the disruptions caused by the civil service strike. Thus, import and export figures are not available between March and August 1981, and analysing the underlying trends is, therefore, more difficult than usual.

Nevertheless, the position can be assessed by comparing the trade statistics for the end of 1981 with those for 1980, and it is quite clear that computer imports have been flooding into the UK in increasing quantities.

In the peripheral equipment sector, it is estimated that imports accounted for about two-thirds of the total British market during 1981; this compared with about 60% in the previous year. In actual terms, imports were valued at between £600 million and £650 million last year as against a total of about £500 million in 1980, while the overall market itself has been growing quite fast during this period.

Assessing the market size is not an easy exercise, but by estimating production and adjusting the figures for exports and imports, it is estimated that the total peripheral market in 1981 was valued at around £1,000 million at wholesale prices.

The government's statistics themselves are not specific about the items which are covered under the peripheral sector, hut the main headings include storage units and input/output equipment. Other equipment covered includes machines for preparing, sorting and converting data for further processing.

Supplies of peripheral equipment came from many countries, but the US has continued to dominate the scene and holds the top position by a wide margin. Its deliveries are believed to have accounted for over 50% of total imports to the UK. Other important suppliers include some of the EEC countries, particularly France, West Germany and Italy. However, some of the other European countries have also heen increasing their market penetration in the UK particularly Spain, Portugal and the Netherlands.

Imports from the Far East are still relatively small, though Japan has been stepping up its deliveries over the past twelve months. In fact, these sales still account for only 3% of total British imports but they have been growing very rapidly over the past twelve months.

The growth in imports of complete systems and CPUs has been even faster than that for peripheral equipment, and, though full figures for foreign deliveries are not available for 1981, it is believed that the total may have reached £400 million for this sector. This was an increase of about 60% compared to the previous year, with certain types of CPU's recording even larger rises.

The size of the market for this sector is not available but it is estimated at around £500 million at wholesale prices. Home production was marginally down during 1981, and amounted to just over £300 million. There was also an active business in exporting, with sales overseas increasing by about 20% in 1981. The main feature, however, has been the increasing penetration of foreign deliveries, which now account for about 80% of total demand.

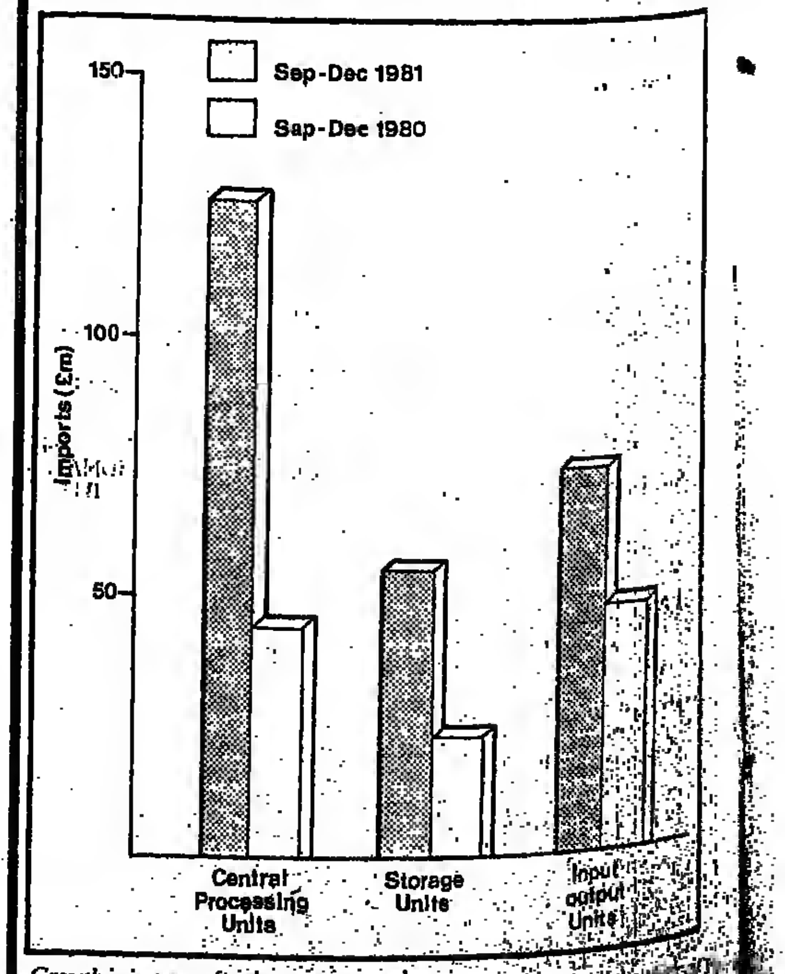
For CPUs there were two main suppliers, namely the United States and Ireland, and they have been increasing their sales into the UK rapidly. In addition, deliveries by West Germany have been growing at a rapid rate, while imports from France and the Netherlands were also of some importance.

With regard to Japan, however, the official statistics reveal that their share was still very small, and was probably less than 5% of the total; evidently, this situation will change over the next couple of years, as better and more sophisticated products come into the UK from the Far East.

There is little doubt that British manufacturers of hardware equipment are meeting strong competition from foreign suppliers. Quite clearly, imports have been helped by certain factors during 1981, particularly the relatively high level of sterling against other foreign currencies, which has made importing more profitable and cheaper in many sectors during most of 1981.

Evidently, the recent fall of sterling may have some adverse impact on imports, but strong competition from America and Europe is likely to continue unabated over the next twelve months. In addition, there is the continued build-up in the Japanese computer industry, which is likely to lead to more aggressive selling of its products in the British market in the future.

Unless British based manufacturers fight back effectively over the next few years, there is little doubt that foreign imports will continue to dominate the British scene and will have a virtual monopoly in some product groups.



Growth in imports of main computer products.

COMPEC EUROPE PREVIEW – 4

A sample of the exhibitors and products which will be seen at Compec Europe '82. Report by Della Bradshaw

Fair in the heart of the EEC is popular with Europeans

BRUSSELS is the political and economic heart of the EEC, so it's quite fitting that one of the oldest fairs in the computer world, Compec, should choose it to house its European exhibition.

This is the second time that Compec has ventured beyond the shores of the UK. Last May, Compec Europe started life in the Place Rogier exhibition centre in Brussels, and it will make a second appearance there this year on May 4-6.

Despite the rather depressing economic climate, the exhibition organisers say that Compec Europe has attracted at least as many exhibitors as last year, with about 90 stands already booked. The majority of these have been taken by European companies, and 14 by UK firms.

Brussels is one of the easiest European cities to get to from the UK, and is the administrative hub of the EEC, with good road, rail and air links to the other nine members of the Community and beyond.

Compec Europe, with the unique computer industry record of Compec UK behind it is seen by many exhibitors as a way of attracting distributors and agents outside the massive continental fairs in Germany and France.

Like its UK parent, it is a showcase for almost every product in the computer industry, from peripherals to mainframes, from general office software packages to CAD. For this reason companies like Windsor-based Tamsys find it ideal, according to Phil Bowe, one of the directors.

"We are both a development and distribution company," he said. "So we are selling both in-house products and also other companies' products. We find these fit together nicely at Compec Europe."

Some European companies obviously agree with him. Computing and Electronics International from Antwerp in Belgium is the Benelux agent for Vector microcomputers and agent for a range of peripherals manufacturers. These will all be on display at Compec Europe, together with C&EI's own range of software.

Although only 14 stands are occupied by UK companies at Compec Europe this year, they represent an array of established and new names. One of the bigger UK exhibitors is Plessey Microsystems, which will be showing the Miproc RTS microcomputer for the first time in Europe, together with bubble memory systems, bulk store semiconductor memories and Multibus compatible memories.

Another well-known name in Europe is Data Type Terminals, which has distributors in France and Germany and a sister company in Frankfurt, as well as having its graphics boards sold in virtually every European country. At Compec Europe this year this company is launching Autograph as the new name for its VDU graphics boards, but is particularly interested in generating sales leads for Autograph and the Atlas computer system.

But not all the UK companies are old hands in the European market. Companies like Microvitec of Bradford are showing at Compec Europe for the first time. Indeed, Microvitec was only set up in the UK two years ago, to manufacture a range of high resolution colour monitors, with 80 or 132 column applications suitable for most micros.

Another new British firm to exhibit in Brussels is Peerless Foam Moulding, whose main line of business is making the enclosure for VDUs and cables from structural foam.

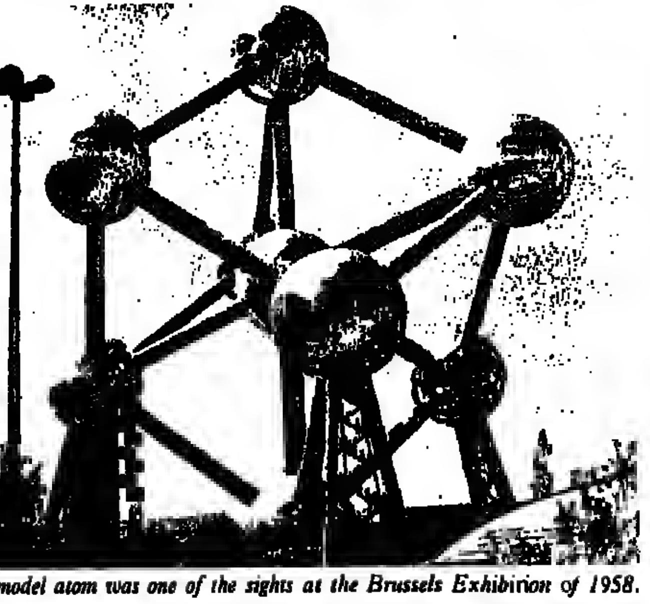
One product which will have its first showing at Compec Europe is Tamsys' CP/Maker, a card which transforms Commodore Pets into CPM machines.

One of the smaller exhibitors from Belgium is the Brussels-based Zetes Electronics Inc, which is showing one product, the data communication network control, made in Switzerland. Datec is composed of a series of modular devices and was designed to allow flexibility in such fields as reconfiguration and expansion of existing systems.

At the other end of the scale, companies like ITC of Belgium are exhibiting a wide range of software and hardware. ITC's offerings include the Belgian Butler microcomputer, and old favourite software packages like Wordstar.

And Brussels-based Noron is showing a whole range of Panasonic hardware and software, including the JR-100, Japan's answer to Sinclair's ZX81.

One new range of Belgian products to be shown at Compec Europe is the Dataget series produced by General Engineering and Trading in Antwerp.



This model atom was one of the sights at the Brussels Exhibition of 1958.

Of the Dutch subsidiaries exhibiting at Compec Europe, CalComp International will be showing some new computer graphics products to complement its line of CAD equipment. These include the model 5500 electrostatic plotter, and CalComp's new graphic controller line, model 953.

Ramtek sees Compac Europe as an opportunity for increasing sales, according to Hanneke de Leeuw. "We hope Compec Europe will help us boost our sales," she said. "We are particularly interested in sales in the Benelux countries as a result of this exhibition."

This emphasis was placed time and again by the Belgian and Dutch exhibitors, who see Compec Europe as a means of boosting local sales.

Exhibitors at Compec

Exhibitor	Stand
AIMS INEX SA	B21
AP COMPUTER CONSULTANTS	C5
APEX COMPUTER RECRUITMENT	A5
ARLECO	C15
ASAC SA	B14 C14
BELCOMP	C23
BELL TELEPHONE MANUFACTURING	E9
BETA	B5
CODEX EUROPE	A11 A12
COMART LTD	A6
COMPUDATA BELGIUM SA	A24 J4
COMPUTER WEEKLY	B3 B4
COMPUTING & ELECTRONICS INTERNATIONAL	E2
CONRELEC SBA	J2
COUNTRY COMPUTERS	A9
DATA APPLICATIONS	C16 C18
DATA LOGIC SPA	B16
DATA NEWS	F10
DATA TYPE TERMINALS	A7 A8
DICOLL ELECTRONICS LTD	B2
DILIGENTA	G8
DIODE BELGIUM	F14
DITEX DIFFUSION	E14
DRION SA	D3
ECOPRESS SA	E5
EGEMIN VN	D8
ETILUX SA	C21
EUROPDATA SYSTEMS PVBA	B23
EURODIA SPRL	B15
FACIT SA	B8 B9
FICHET BAUCHE	G5
FIMECA SA	A4
GET NV	A10
GEVEKE ELECTRONICS	A13 A14
GIRAVIA	D4
HANTAREX SPA	B17 B18
HEIJEN BV	E1
HELIGRAPH – MICRO-COMPUTING	D10
HEWLETT-PACKARD BELGIUM	F12 F13
INCAA BV	B6 B7
INELCO BELGIUM SA	D2
INTERFACE NV	E16
INTERGRAPH INTER-	
ACTIVE SYSTEMS BV	E10 B11 F6 F7
ITC BELGIUM	E17
LANDRE INTECHMIJ	F5
MAUDAX SA	C7
MBLE SA	D5
MEGAVOLT	C16
MICROLINK SYSTEMS TECHNOLOGY	E18
MICRO TECHNOLOGY	C10
MICROVITEC LTD	C1
MICRO VIDEO	E4
MSI DATA INTERNATIONAL	D6
NENIMIJ BELGIUM	G9
NORON SA	D9
OLYMPIA MACHINES DE BUREAU	D7
PEERLESS FOAM MOULDING CO LTD	C2
PENNY & GILES	C6
PHI DATA SA	D1
PHILIPS & MBLE ASSOCIATED SA	D5
PLESSEY MICROSYSTEMS	B1
RAMTEK EUROPE BV	A15
REGULATION MESURE	G4
RIESCHOTEN & HOWENS	E12 E13 F8 F9
ROELCO	C8 C9
CN ROOD	E15 F11
ROSTRONICS LTD	C4
SA AUTOMATION NV	F4
SYSTEMS INTERNATIONAL	B3 B4
TAMSAY LTD	C3
TARGET SYSTEMS SA	A1 A2 A3
TELEPRINT BENELUX BV	H1 H2 H3
TERMINAL MART BENELUX	E6 E7 E8
VERSATEC	F1
VOLLWOOD COMPUTERS BV	H4 H5
ZETES ELECTRONICS SA	C11

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SYSTEMS INTERNATIONAL
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A telecoms monopoly is to be replaced by a duopoly . . . . John McNulty looks at the aim of 'Mercurial Extremism'

What happens when Buzby gets a competitor next year?

AS a result of government legislation and direction two new telecommunications systems, Project Mercury and British Telecom's X-Stream will offer a new range of digital services. So now monopoly is replaced by duopoly.

Apart from a new game for Waddingtons who will benefit and how? What is the aim of this Mercurial Extremism?

Mercury Communications Ltd has only recently been formed. Staffed largely by stalwarts from Cable & Wireless its composition is Cable & Wireless 40%, BP 40%, and Barclays Merchant Bank 20%. There is board representation from all three consortium members. Offices are being set up and appointments are still to be announced.

Mercury is likely to be a small dynamic team, well muscled but lean and ready to respond to instant market changes. Cable & Wireless will no doubt be called on to supply extra expertise.

Disentangling personalities from their corporate characters is always difficult but two of the most visible and characterful actors in the "digital drams" are Frank Lawson, director of British Telecoms Inland Customer Services, and Howard Kleyn, head of marketing at Mercury Communications Ltd.

Lawson's love of life and his genuine enthusiasm for his job coupled with his keen commercial competitive sense make listening to him a stimulating experience. Kleyn's ring of confidence, his urbane and intelligent air of quietly determined strength and competence gives the listener the feeling that whatever he says will be done, will be done quietly and quickly.

Both remind me that Britain has an enormous reservoir of capability waiting to be tapped and I am proud to see it so well represented.

Nonetheless, whenever the opportunity arrives to test their mettle I will attempt to sharpen their cutting edges. We have a commonwealth of communications to conquer and we must be honed razor-sharp.

Finally, Jonathan Solomons, Under-Secretary, Post and Telecommunications at the DoI has the extraordinary difficult tasks of trying to stimulate competition; regulate and at the same time liberalise; innovate and interpret in a rapidly changing technological market; serve several masters at once and try to do it all with a tiny staff of civil servants; to mediate in all this melee needs the judgment of Solomon.

Solomons has a tough act (including the 1981 Telecommunications Act) to follow.

Essentially Mercury is an extremely high bandwidth "Mega Ring". Its pathway roughly describes a figure of eight with London and Bristol at its base, Birmingham as its nexus, Liverpool, Manchester and Leeds as the line of its head. For convenience it follows the tracks of British Rail during most of its journey tailing off to customer termination points.

The ring itself has high redundancy and reliability, passing torrents of information in both directions simultaneously. Should a failure occur in one direction the data will still appear from the other end of the ring.

British Rail will be responsible for the maintenance of the cable on its own tracks. BR itself carries a high volume of voice telemetry and computer data and it should find Mercury very useful internally.

Similarly BP and Barclays are in the mega class of voice and data traffic users.

The streams of bits hurtling round this mobius strip (a figure 8 if you prefer) will not only be fast and plentiful; they will be fairly unstructured. This means that users can choose a "mix 'n' match" of inputs and outputs changing at will from voice to fax to data depending on their immediate needs.

Kleyn agrees this is a clear advantage. "Thanks to the modulation scheme used, two or four channels of voice are available on the digital bearer which on System X could only carry one voice." Unlimited and restricted "raw" bandwidth is available bearing in mind that all signals will be digitalised.

The typical customer will probably have a multiplexer at his premises which then interfaces into the Mercury system through a "tail" which then joins the raging torrent of bits hurtling round the ring. The "tail" link could use a number of approaches: microwave, optical cable, ordinary cable or laser link.

The microwave links would use very small unobtrusive roof dishes and a clever technique of cellular radio which ensures optimum use of bandwidth without interference to other radio spectrum users.

> ‘You have to have a vision of 5, 10, 15 years ahead. Once you have a revolution it is largely irreversible’

Both types of cable link may raise right-of-way problems locally and laser links are at the beginning of the learning curve for performance.

Interconnect is highly desirable and in many cases essential. Battle with British Telecom may continue over exact details but in principle international interconnect will run out through Mercury's own base station satellite transponders to the Indian Ocean and the Atlantic. However Buzby will be the supervisor as the actual Intelsat licensee, which must be galling to Mercury.

Mercury (in the form of Cable & Wireless) has unrivalled capability in running international comms links and has the finest record worldwide in this field.

Interconnect will also be available via local satellites for Northern Ireland, the North Sea (rigs currently use Tropo Scatter) and Europe.

Buzby will also allow ISD and STD interconnect, but has been able to control matters.

So far, however, the main feature of the Thatcher government's much-touted deregulation of telecommunications has been BT's ability to delay competition until it is fitter to face it.

By offering lower rates, higher data transmission speeds and quicker installation of equipment, the aim is to steal away some of BT's frustrated business customers. But it will be early 1983 (London only) before Mercury flies. By then BT's new overlay network, speeded up when Mercury was first proposed, will have been offering its souped-up business service for six months.

Project Mercury was nearly aborted by its backers' belated realisation that a new domestic network would not be much use without both international and local links. BT stood square in Mercury's access to both. It took the industry department six months (after BT's monopoly had been ended) to arm-twist BT into conceding "the principle of connection" between itself and the new rival. When it finally bowed, BT managed to screw such a stiff price from the government that Mercury's projected profits are already being scaled back.

The trouble for Mrs Thatcher is that deregulation is double-edged. It is supposed both to give consumers greater choice and to stimulate British industry. That could have been done by speedily privatising BT and licensing a handful of fresh private competitors; but that was too radical. Result: precious little improvement for consumers and little encouragement to British industry to realise that a revolution is under way.

Kleyn sees the provision of many services such as electronic mail, store and forward voice and secondary value added network services, appearing on the ring. Kleyn clearly sees these as stimulating industry to manufacture new equipment with massive export potential.

Meanwhile the first manifestation of Mercury will be in London and probably will be principally cellular microwave to begin with in the first quarter of 1983. This leads us neatly to Frank Lawson and British Telecom who have already started their London overlay network as a first stage in their X-Stream plan.

X-Stream is BT's new name for a new layer of digital services built on the foundations of the existing PSS (Public Data Service).

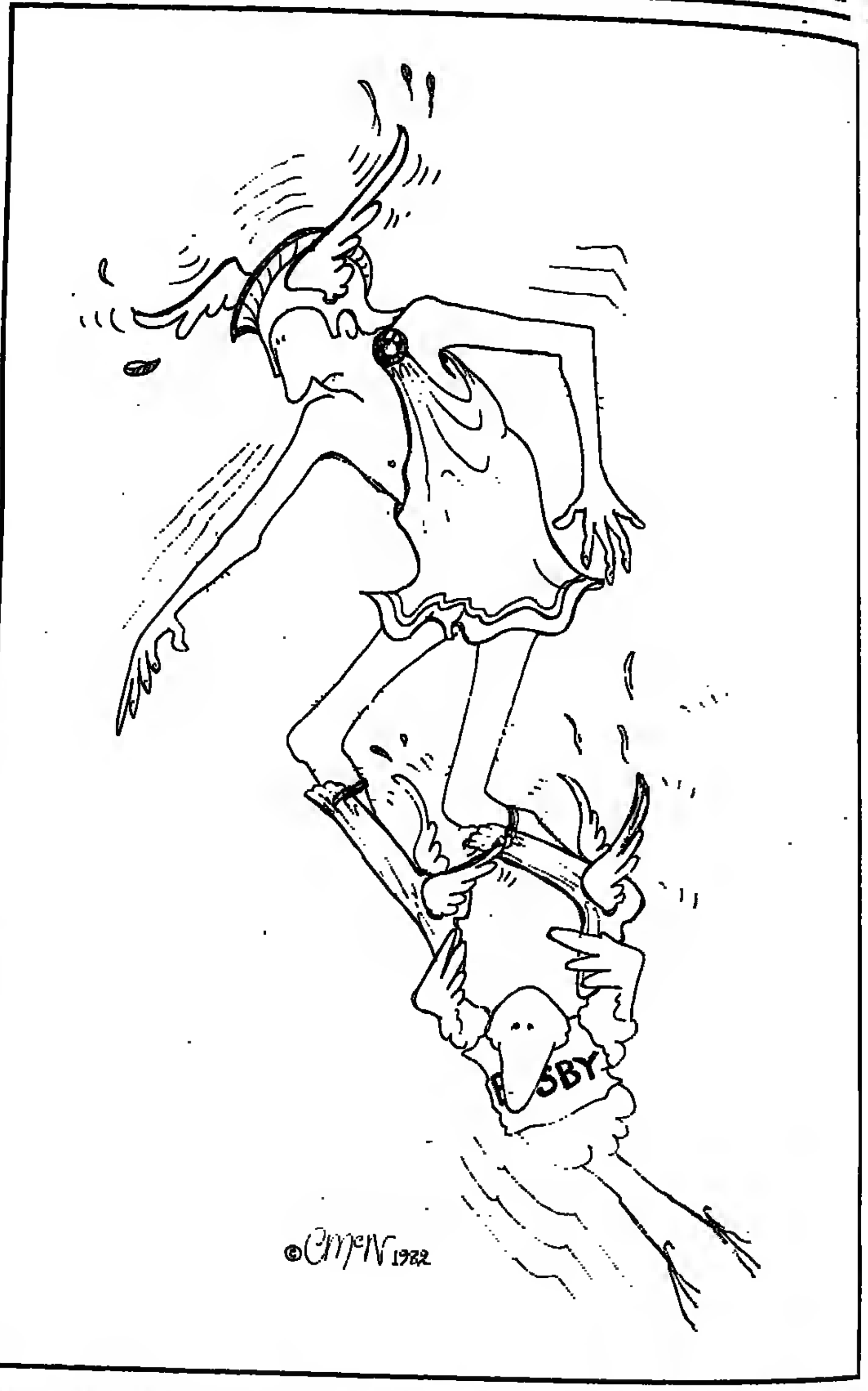
X-Stream has clearly gained much enthusiasm under Buzby's wing and we now wait to see if as Lawson puts it "we're going to compete and we're going to win."

In the words of Jonathan Solomons, "Over the last 18 months there has been a volte face by British Telecom. They are reorganising marketing and restructuring for example with BT enterprises. They have slashed tariffs partly because of Mercury and this is just the beginning of the plan to stimulate BT to counterthrust. This government plan sees the UK becoming a communications centre of excellence second to none."

Much of this obviously comes from his master, Baker. Even so BT, for whatever reasons is galloping forward in all directions with its shoulder to the wheel, nose to the grindstone and back to the wall.

As Lawson says, "we are going to do a lot more things which I have no intention of telling you about because it would help the competition. One of the chances in the future is that we will no longer be so open about what we are doing over the next five to ten years."

On the political front Lawson claims agnosticism though his comments about "The Current Theology" belie that statement. But on the question of changes in government policy he says, "you have to have a vision of 5, 10, 15 years ahead. Once you have a revolution it is largely irreversible."



Users of the latest large mainframes are discovering unusual performance characteristics. Kevan Pearson explains

The bigger the machine, the more variable its performance range

THE advent of large scale general purpose computers like IBM's 3081 or National Advanced Systems' AS9000 has accentuated some awkward performance problems which have previously been on the sidelines.

The basic problem is, as IBM acknowledges when it publishes performance data, that large systems have variable performance ranges, and the larger the system the greater the potential for variation.

This was illustrated quite clearly with IBM's latest announcement – the 3083 series, where the top model, the 3083J, has 1.8 to two times the performance of the base model (3083E). In turn, IBM's top of the line 3081K is rated at 1.6 to 1.9 times the power of the 3083J.

This is all confused because IBM does not quote performances in mips (millions of instructions per second). Instead, it uses existing products as a reference point. This means that performance statistics in mips can be arbitrary.

The issue is further complicated since IBM does not guarantee that any user will get throughput based on the computer's speed of processing instructions. Throughput is based on so many more factors that the mere speed of a computer in mips can have a distinctly minor impact on a system's overall performance.

> ‘Machines on which variable performance becomes evident are going to be found in more DP departments’

This does not apply solely to IBM. It applies to all the plug-compatible manufacturers and such companies as ICL, Burroughs, Sperry Univac and Honeywell – in fact any manufacturer which makes large scale general purpose computers. However since IBM is widely regarded as having over 60% of this market world wide, the company provides the most useful reference point.

Any discussion of variable performance is the relationship between the speed of the processor and the speed at which main memory can be assessed.

Figure 1 shows how memory access speed has remained fairly constant, since before IBM's venerable 370/158, while the actual speed at which a computer can run in theory has risen dramatically. Consequently, if a machine is free from the constraint of having to retrieve data from memory it can run at its theoretical limit.

This is why IBM's 3081D has been benchmarked at 2.1 times the power of the 3033U (about five mips) but only for large scientific number-crunching jobs where the processor utilisation is high and there is little need to continually access memory.

Change the nature of the work load, however, and all this changes. The speed at which memory can be accessed becomes the determining factor in a system's net performance. And this variability can only get worse. As Brian Burch, a director of NAS explains: "As machines get nominally faster, then performance becomes more variable because the speed of memory hasn't changed."

Figure 1 shows that while the variability on the 370/158 was relatively small, many users may not even have noticed it to any great extent. With the 3033U it becomes noticeable.

The problem now, with machines like IBM's 3083 series, NAS's AS9000N and Amdahl's rumoured 58/50 (seven mips) is that machines on which variable performance becomes evident are going to be found in many more data processing departments than previously.

Users will migrate from small to medium systems, to these new medium to top range systems, without being aware of how variable performance can be.

Computer manufacturers have attempted to eradicate this variability in several ways, one of which is to predict which data the processor will need and to have it available in anticipation. This is fine if the "prediction logic" has predicted accurately what is needed. The system performs at something close to its peak level in Figure 1. If the prediction logic gets it wrong, then memory has to be accessed and the machine slows down.

"Net performance depends on the efficacy of prediction logic, the speed of the processor and the number of memory interrupts," says Burch.

This is where the high speed buffer (HSB) or cache comes in. This is an expensive, very fast memory component which is used to hold recently used data items ready for re-use. "The secret," says Burch, "is what to hold on to in the HSB and what to discard."

Burch expects the HSB to be right about 98% of the time; it is the other 2% of the time, when the HSB doesn't have the required information, that slows performance down. "A shift from 2% to 2.5% can have an enormous impact on overall performance," he says.

Access time for HSB is about 20 nanoseconds compared with anything between 100 and 500 nanoseconds for main memory.

Modern computers also employ a memory buffer for virtual memory systems, known as the translate look-aside buffer. This is at least 10 times as fast as a normal virtual memory access, and Burch expects it to be accurate on 99.8% of enquiries.

Another technique widely used in the AS 9000 and IBM's 3033 though not in the 3081D according to Burch, is pipelining. This allows the sequence of units which make up a large scale computer to operate concurrently.

For example: the instruction processor fetches an instruction, this is translated but not by the instruction processor, so this component can fetch another instruction, and so on. This means that all parts of the processing architecture are in use most of the time.

Some computers combine two pipelines with prediction logic so that when an instruction set branches the machine is not left floundering because it was unprepared for the branch. It is perfectly possible to have more pipelines but the cost goes up proportionally so it becomes uneconomic. IBM did not introduce pipelining on the 3081D, because it could meet its preformance criteria without it. That does not mean it will not be available on future 308X products.

The performance problems with IBM systems which recently hit the news were due in part to the above factors, and partially to the kinds of workloads being processed. Users in West Germany found that their systems performed well below the expected level with a heavy interactive workload, under CICS, IBM's teleprocessing monitor, and under Time Sharing Option (TSO).

This is due to the unpredictable nature of interactive working (see Figure 2). At the moment, the arrival of input/output interrupts is random and an I/O arrival can stop a processor dead while the interrupt's status is checked. Because this was not predicted, and the direction of the instructions following the interrupt cannot be predicted, the processor goes slowly until it has built up a picture of what is required.

Then the prediction logic comes into play and the computer goes at a level approaching its Figure 1 peak, unless there is another random event, like a dispatch instruction, ending the previous instruction stream. Then the cycle begins again.

This effectively means that the processor is working at its Figure 1 peak for a very small proportion of the time due to the random and unpredictable nature of events.

IBM, at least, has attempted to overcome these problems with its Extended Architecture (MVS/XA) for its 308X series products. "MVS/XA will prevent I/O Interrupts from occurring randomly," says Burch. "Under Extended Architecture they will occur only at the invitation of the CPU."

Furthermore, there will be no delay for the presentation of status information. This, says Burch, will make the performance curve for interactive use in Figure 2 more like that for batch processing.

The final point about performance concerns multiple processors. Traditionally only about 2% of IBM's sales have been for multiprocessors. With the 308X this changes since the only currently available machine — the 3081D — is a multiprocessor.

Multiple CPU systems have different performance properties to uniprocessor systems. Hence 3083 users will have different problems to users of the 3081.

The difference is that the 3081's performance depends on having both CPUs working simultaneously. This requires software designed especially for the purpose. IBM has offered systems software with this facility for over six years. Information Management System (IMS), TSO and CICS can all run currently on both processors in a multiple CPU configuration.

> ‘IBM did not introduce pipelining on the 3081D because it could meet performance criteria without it’

Unfortunately the IBM-compatible software industry has not responded, according to Burch. Consequently compatible software on a multiple CPU system can deliver significantly lower performance than using an IBM product on the same hardware.

None of this makes life easier for a user thinking of buying one of these newer top performance machines. Users cannot believe the performance claims of salesmen because performance will depend on the individual characteristics of the system and its workload: 14 mips for a scientific environment could be under 10 mips using TSO.

The answer, according to Burch, is to be aware of the problems, and to try to visit user sites with similar workloads and systems. Do not, under any circumstances, believe the figure quoted by a salesman, he will quote the top figure in the variable range, and there is no guarantee that it reflects any typical user installation.

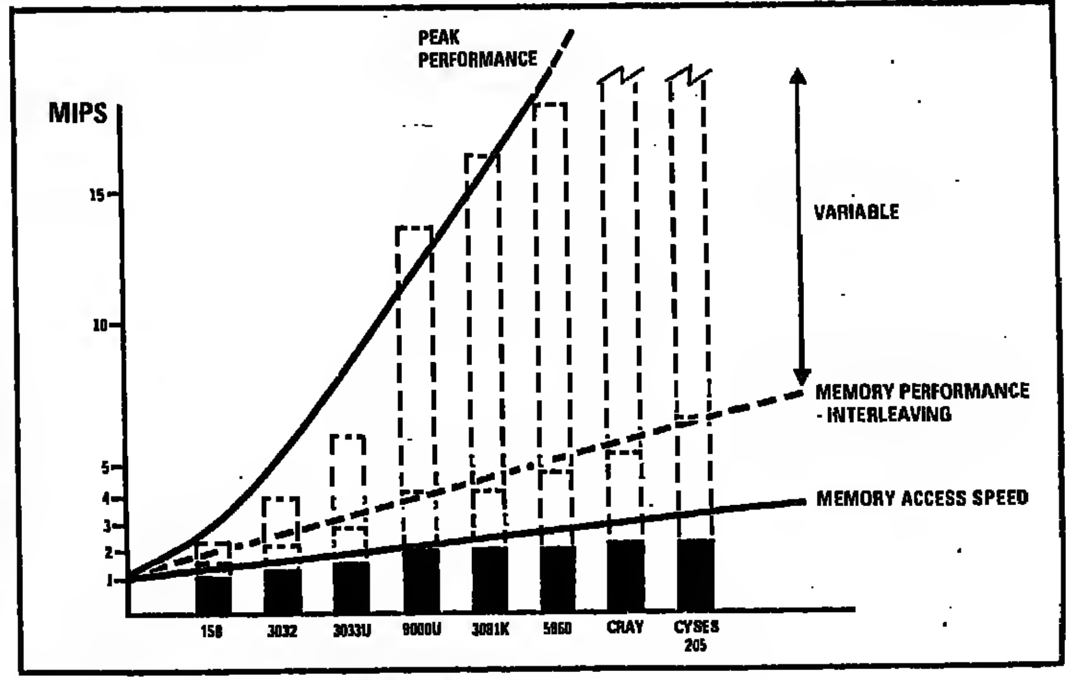


Figure 1. Variable performance on top-end mainframes.

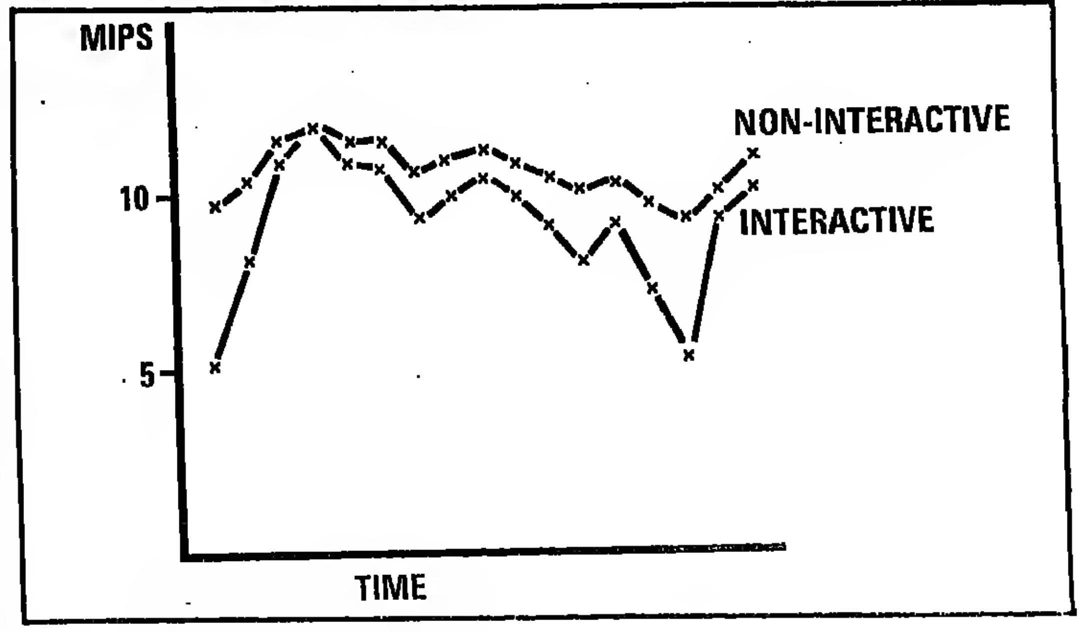


Figure 2. Interactive performance versus batch.

New low rental price list

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DEC					
LA34 DA	46	37	32	27	540
LA34 AA	67	55	47	39	785
LA120 KSR	118	97	83	69	1495
Hewlett-Packard					
2635A	232	191	164	136	2735
Texas					
743	85	70	60	50	1105
745	93	76	66	55	1195
763	147	121	103	86	1995
765	167	138	118	99	2185
Diablo					
1650 KSR	177	146	125	104	2085
630 KSR	178	147	126	105	2100
Teletype					
43 KSR	59	40	42	35	820

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MT110 100 cps	31	25	22	18	358
MT120I 160 cps	35	29	25	21	417
MT120L 160 cps	44	36	31	26	515
MT130 100 cps	44	37	31	26	525
MT140I 160 cps	51	42	36	30	585
Data Products					
M120 120 LPM Matrix	122	101	86	72	1445
M200 200 LPM Matrix	139	114	98	81	1635
Hewlett-Packard					
2631B	213	176	151	125	2512
2631G Graphics	265	218	187	156	3118
DEC					
LA180 Parallel	82	68	58	49	1000
LA120 RO	127	105	90	75	1485
Texas					
810 (full spec)	120	99	85	70	1475
820 RO (full spec)	104	85	73	61	1300
Diablo					
630 RO	147	121	104	87	1735

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Hewlett-Packard					
9815A	49	180	161	133	1896
9825S	126	467	418	344	4817
9825T	133	496	444	365	5220
9826A	133	516	461	380	5433
9835A	168	628	562	463	6616
9836A	189	722	646	532	7600
9845T	385	1459	1305	1075	15352
9845T opt 275	420	1615	1445	1190	16997
9845C opt 275	651	2508	2244	1848	26405
7225B Plotter (RS232 I/F)	42	154	137	113	1618
7245B Plotter (HP-IB)	105	*374	335	276	3843
9872B 4 Pen Plotter (HP-I8)	70	273	244	201	–
9872C 8 Pen Plotter (HB-I8)	91	334	299	246	3521
9874A Digitiser	–	725	648	534	7632
9878A I/O Expander	35	115	103	84	1208
9885M Flexible Disc Drive	56	211	189	156	2226
9895A Dual Drive Master	98	352	315	259	3708
9895A Dual Drive Slave	77	288	258	212	338
2671A Terminal Printer	21	66	59	49	696
2671G Graphics Thermal Printer	28	78	70	57	824
Tektronix					
4051 32 KB MEM	–	514	460	379	5410
4052 64 KB MEM	–	817	731	602	8595
4054 64 KB MEM	–	1504	1346	1108	15840

VISUAL DISPLAY UNITS RENTALS FROM

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DEC					
VT100	99	82	70	58	1160
VT101	67	55	48	40	790
VT131	101	83	71	59	1180
C Itoh					
CIT 80	69	57	49	41	814
CIT 101 (VT100 Compatible)	81	87	58	48	950
Hewlett-Packard					
2621A	99	82	70	58	1181
2621P	161	133	114	95	1892
2622A	112	92	79	66	1320
2622P	175	144	124	103	2054
2623A	194	160	137	114	2276
2624B	155	127	109	91	1821
2624P	218	179	154	128	2555
2626A	224	184	158	132	2640
2626P	287	236	203	169	3374
2642A	387	319	274	228	4553
2647A	513	422	362	302	6040
2648A	439	362	310	258	5160
Hazeltine					
Esprit	44	37	31	26	525
1410	41	34	29	24	475
1420	44	36	31	26	515
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1510	69	57	49	41	1050
1520	85	70	60	50	800
1552	63	52	44	37	1107
Executive 80/20 (full spec)	94	77	66	55	1107
Executive 80/30 (full spec)	1081	89	76	64	1285

LINE PRINTERS RENTALS FROM

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B300 300 LPM	308	253	217	181	3820
B600 600 LPM	404	333	286	238	4750
B1000 1000 LPM	660	544	466	389	7765
BP1500 1500 LPM	1146	944	809	674	13485
BP1800 1800 LPM	1274	1049	899	749	14985
Centronics					
6300 300 LPM	268	221	190	158	3150
6600 600 LPM	345	284	244	203	4050

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Tektronix					
4010-1 (Opt 1 + GPO Modems)	415	342	293	244	4879
4014-1 (Opt 1, 30, 34 + P.O. Modems)	1006	828	710	592	11840
4015-1 (APL) As above	1134	934	800	667	13348
4016-1 As above	1138	937	803	669	13380
4112	579	477	409	341	8819
4114	1056	870	746	621	12431
4611 Hard Copy Unit	265	219	187	156	3125
4612 Video Hard Copy Unit	265	219	187	156	3125
4631 Hard Copy Unit	337	278	238	198	3859
4632 Video Hard Copy Unit	337	278	238	198	3959
4662 X – Y Plotter	255	210	180	150	2999
4663 Interactive Plotter	604	497	426	355	7108
4954 Graphics Tablet 40"x 30"	374	308	264	220	4398
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818	79	65	55	46	1095
951EE	85	70	60	50	985
Midlectron					
M22	65	54	46	39	875

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DEC					
PDP11/V03	452	372	319	266	5314
PDP11/T03	790	850	558	465	11950
PDP11/23	1071	882	756	630	12600
PDP11/24	1511	1244	1067	889	17778
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PDP11/44	2400	1976	1694	1412	28239

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12" green monitor	11	9	8	6	134
Silentype printer	17	14	12	10	203
Apple III	216	178	152	127	2545
5¼" drive	33	27	23	19	385
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DECmate (single user)	545	449	386	321	6298
WD82 (two user)	731	602	518	431	*8995

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Zilog ZDS 1/40	217	830	743	612	524
Motorola Ex II	245	914	818	674	577
TEK 8002A (EROM)	330	1320	1182	973	834
TEK 8550 (EROM)	350	1400	1258	1036	888

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LSI 2401 2400 baud modem	53	43	37	31	620
MPS 48 4800 baud modem	149	123	106	88	1750
MPS 4829 4800 baud modem	179	147	126	105	2100
MPS 9629 9600 baud modem	264	217	186	155	3100
Omnimux 40 4Ch multiplexor	74	64	52	44	865
Omnimux 40 8Ch multiplexor	116	95	82	69	1355
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1520 VDU	625	8421 Dual Data Cassette	590
1552 VDU	490	**Texas Instruments**	
Digital		810 R/O	790
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PRODUCTS

Microcontroller is aimed at science, education markets

MIDWICH has launched a new microcomputer system, the Microcontroller (MC). It is the first low-cost microcomputer designed specifically for control applications, the company claims, although it can also be used as a conventional computer.

It is primarily aimed at the educational market, but special features make it particularly suitable for laboratory control applications. MC is Z80-based and is housed in a structured foam and steel case.

The operating system includes a Control Basic interpreter developed jointly by the University of Oxford and Warren Spring Laboratory. The software incorporates many features, including clock interrupt handling and a multi-tasking scheduler. In addition, the inclusion of logical operators, input/output instructions and easy communication with machine code subroutines make it a suitable language for advanced applications.

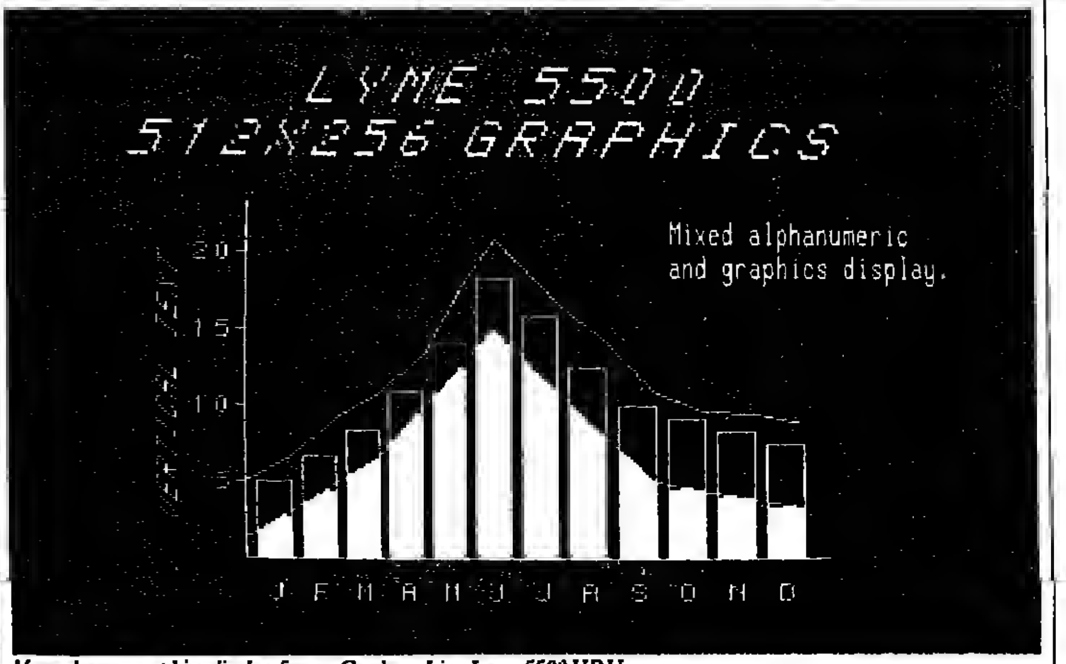
Access to the outside world can be made through the optional experimental unit which connects via a ribbon cable to the expansion port of the MC. Six accessory slots, on this unit, can accommodate any combination of the input/output accessory boards which includes analogue input, output, and digital input/output. In addition a breadboard area for construction of special circuits, and a 4K Eprom socket for user programmes are provided.

The system costs £375 (less £30 educational discount), excluding VAT, for the basic computer. Accessories cost from £35 to £145.

Griffin & George has been appointed as specialist distributor.

A series of training courses has been organised at the University of East Anglia based on this equipment.

Midwich Computer Company (CW), Hewitt House, Northgate Street, Bury St Edmunds, Suffolk, IP33 1HQ. Tel No: (0284) 701321.



Monochrome graphics display from a Gresham Lion Lyme 5500 VDU.

Graphics options for Lyme VDUs

GRESHAM Lion has developed optional graphics packages for its recently launched Lyme 5500 and 6000 VDUs. The facilities may be added to the units by plugging in an additional printed circuit card.

The graphics boards are available in two configurations, providing two pages of 512 × 256 pixels in monochrome, or two pages of 256 × 256 pixels in eight colour or eight greyscale level display. The monochrome versions are supported by the Lyme 5500 terminal, while the Lyme 6000 high resolution colour version supports the 256 × 256 display.

These graphics facilities can be combined with the normal alphanumeric display.

Gresham Lion (CW), Gresham House, Twickenham Road, Feltham, Middx TW13 6HA.

Interface is 'almost universal'

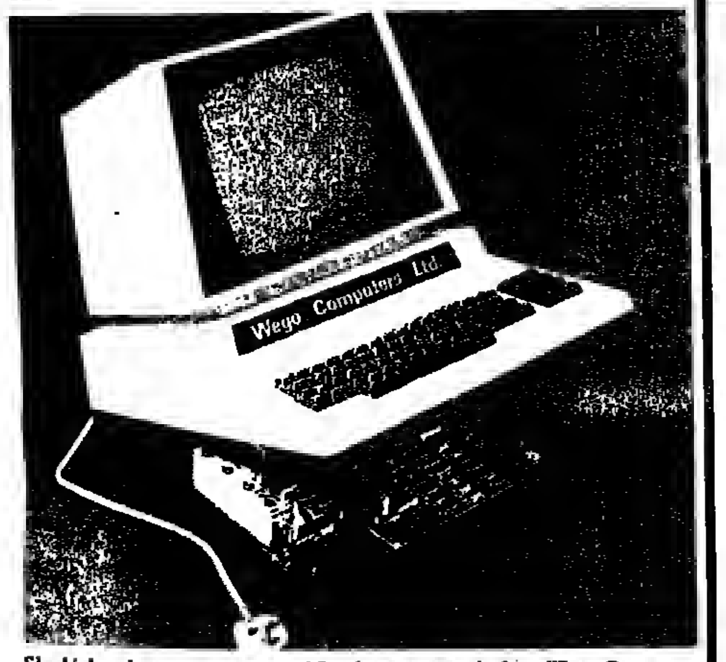
MUTEK MSS has launched the Spriinter multi-interface/spooler module, claimed to allow 98% of microcomputers and peripherals currently on the market to operate together without modification. The company describes it as "practically universal".

Costing from £140, the Spriinter incorporates cross-connectable RS232C, IEEE and Centronics-compatible input and output interfaces, together with a processor and 2K to 32K of RAM.

Computer and peripheral are plugged into the appropriate interfaces and the device acts as a high capacity buffer and carries out all protocol, data rate and signal level conversions.

Input and output data transfer speeds are independently selectable from 300 to 19,200 baud, though fast data dump speeds of 120,000 bps parallel and 30,000 bps serial are available for special applications. Provision is also made for external clock input.

Mutek MSS (CW), Quarry Hill, Box, Wilts SN14 9LP. Tel: (0225) 743289.



Should there be a power cut, BackPack power supply from Wego Computers will keep the Commodore Pet and disc drive going for 15 minutes after the power goes off, allowing time for a proper closedown. It is fitted inside any Commodore Pet and a unit can also be run in the dual disc drive. It reaches full charge after the Pet has been used in conjunction with the BackPack in 16 hours. The battery has a life expectancy of three to five years. It comes fully assembled and tested with instructions on installation and costs £140.00 + VAT. Available from Commodore dealers.

Midlectron launches low-cost televideo

A TELEVIDEO terminal launched on the UK market by Midlectron offers features not usually available in VDUs in its price class, claims the company.

The Televideo 910 Plus provides editing capacity, block mode transmission and protected fields, making it suitable for applications where stored data needs to be frequently changed or amended.

Priced at about £400 (depending on dollar fluctuation), it is targeted at the low-end "smart" terminal market for users who require large numbers of reliable VDUs.

The modular, microprocessor-based design allows OEMs and systems houses with special requirements to customise the firmware and keyboard layout.

The 910 Plus has five screen attributes – blink, reverse, underline, half-intensity and blank. It has ten pre-programmed function codes and self-testing diagnostics. It operates on 15 baud rates, from 50 baud to 19.2 kilobaud.

It has a typewriter-style keyboard and produces 8 x 10 character resolution in upper and lower case.

Users can change the terminal's character fount from English to Spanish, German or French.

Midlectron (CW), Midlectron House, Nottingham Road, Belper, Derbyshire. Telephone: Belper (077382) 6811.

Floppy disc exerciser in UK

A PORTABLE floppy disc drive exerciser, the C.Itoh FEX9 is available in the UK from Monolith Electronics.

Designed primarily for testing C.Itoh floppy disc drives, the FEX9 will also test all industry standard drives compatible with the Itoh range.

Full read/write tests can be carried out for single and double-sided drives of either single density (FM) or double density (MFM) types. A detailed test and fault location procedure can be carried out on each drive with the FEX9's keyboard and toggle switches.

Monolith Electronics (CW), 5-7 Church Street, Crewkerne, Somerset. Tel: (0460) 74321.

[illegible] — If IBM had intended CICS to spool to Power and Power to spool to CICS, they would have done it themselves.

HEALTH HAZARD — Decentralised CICS users are conditioned to delays in getting their batch reports, invoices etc. Same-day turnaround, on their own in-house CICS printers, would be harmful to them.

[illegible] BAN CICSPRINT — On the grounds that CICS users should not be permitted to visually review their own reports before printing them, or decide what to print and when, even though tight security prevents misuse.

U.N. SECURITY COUNCIL GRILLS CICSPRINT SUPPLIER — There is no way anybody can offer RJE facilities through CICS at a much lower price (they allege). If you want RJE facilities you have to pay RJE prices.

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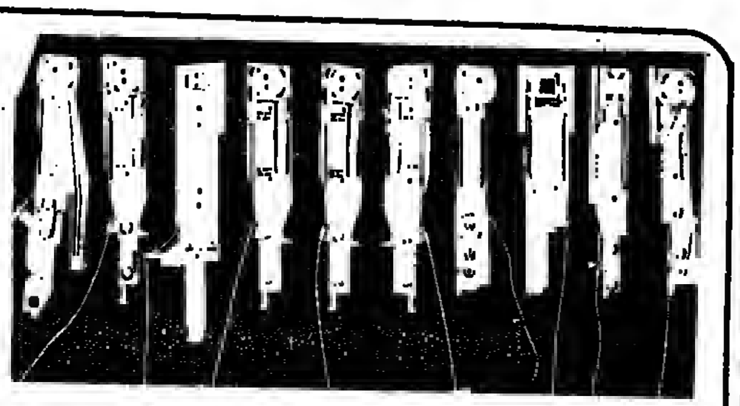

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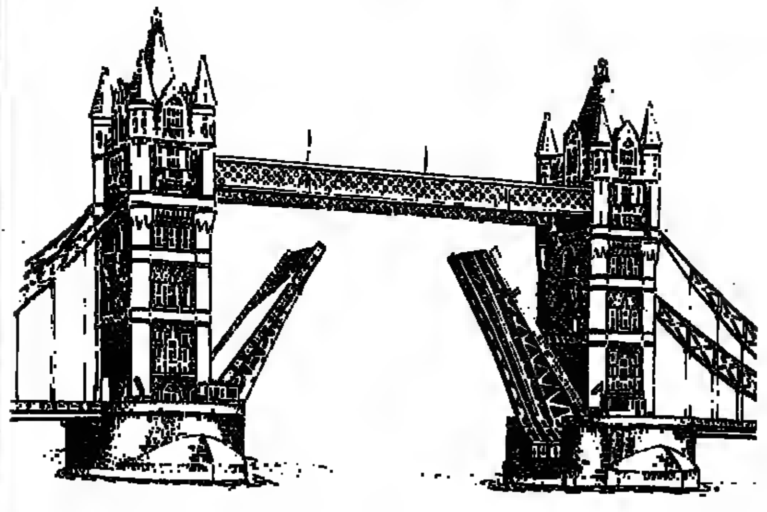

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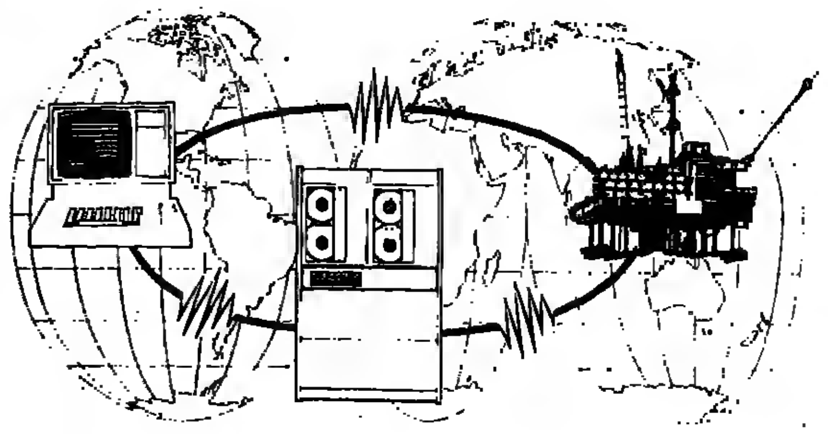

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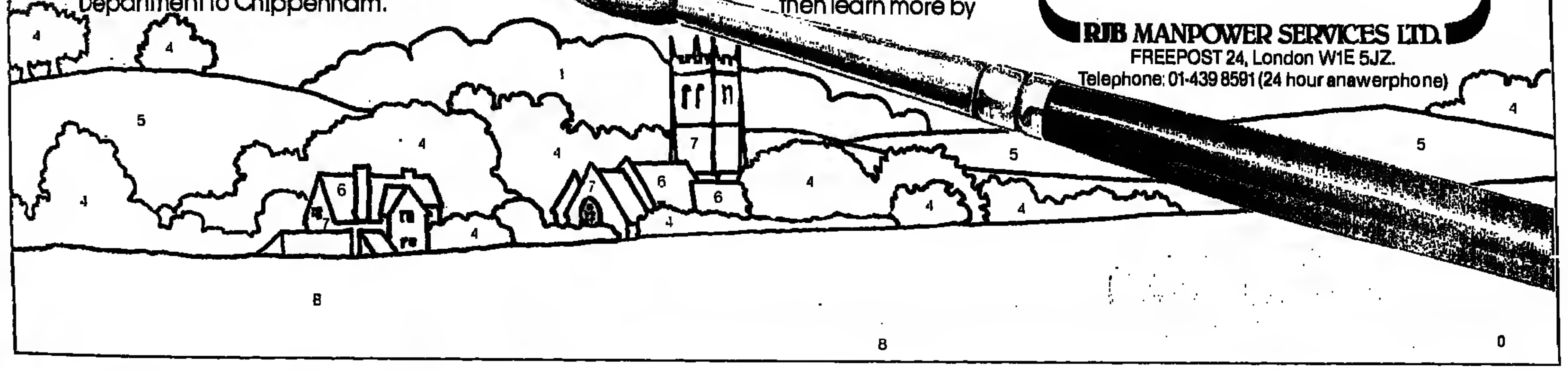

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D.P.M.
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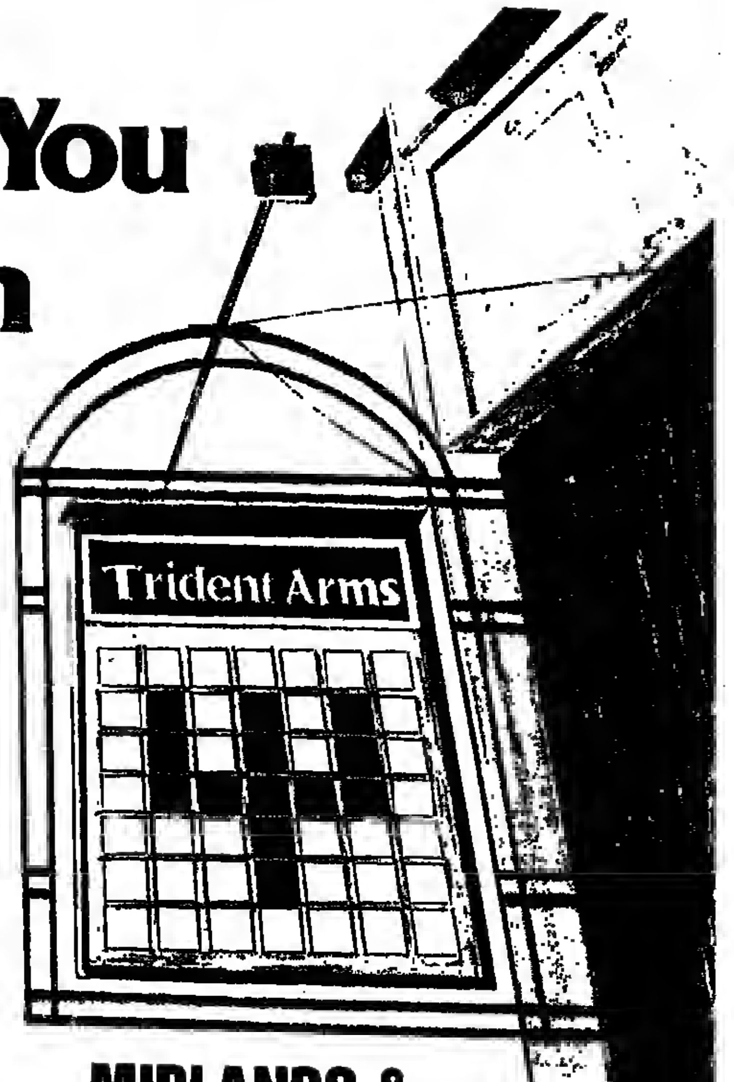

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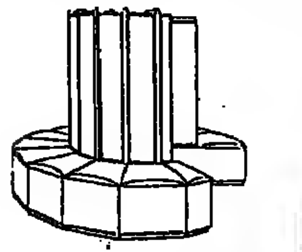

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The person appointed will be required to teach on a range of Computing Courses and should have a degree or equivalent professional qualification and commercial Data Processing experience.

Salary Scale £5034-£8658 p.a.

Further details and application form can be obtained from the Principal, Suffolk College, Rope Walk, Ipswich IP4 1LT, to whom completed forms should be returned within fourteen days of the appearance of this advertisement. Please send large s.a.e. and quote post number 5.122.

(9357)

Advertisers please note the Scottish recruitment feature, scheduled for April 22, will now appear on May 6.

For further details contact Owen Kelly on

061-672 8861

FTB

Project Leader: Programming

To £13,000+Car

Programming Team Leader

To £11,000

Hampshire

Our client a major industrial group wishes to recruit additional senior programming staff to support a wide range of new systems development. The majority of systems are on-line, make use of database techniques and are written in COBOL. Programmers use interactive programming tools on hardware dedicated to development.

Project Leader: Programming

Required to control a team of 15 Programmers. The Project Leader will be responsible for ensuring that his staff possess the necessary skills to meet committed timescales established in conjunction with Project Leaders operating in the systems groups.

Responsibilities will extend to standards, techniques, technical design, quality assurance and recruitment. You are likely to be 30+, a graduate or equivalent, with a strong background in COBOL, database and on-line systems. Experience of team management is essential.

Programming Team Leader

Reporting to the Project Leader: Programming you will be responsible for a group of Programmers. Team size will vary by project and responsibilities will include ensuring that team members adhere strictly to standards in producing quality software to agreed timescales.

You are likely to be a graduate or equivalent with a minimum of three years COBOL programming experience. Exposure to on-line systems development, database techniques and staff supervision would be an advantage, but are not essential.

To apply please contact: Brian Postles.

Ferguson Thorley Bowles Associates Limited
International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4SU.
Telephone: Staines (0784) 59247. Telex 89148

GREATER MANCHESTER POLICE

POLICE COMPUTING

The Greater Manchester Police is one of the largest Forces in the country with a comprehensive programme of computerisation.

DEVELOPMENT STRATEGY

The Greater Manchester Police is currently developing a number of major systems which will play a significant part in assisting the operational and administrative efficiency of the Force. These include a data network linking Headquarters to divisions and sub-divisions, message switching, criminal records, personnel, stock control, central ticket office, word processing and other office systems. Other applications planned for the future include command and control, street index and an interface to the Police National Computer.

To assist in this development the Force has a vacancy for a

PROGRAMMER S01/2 £8,190/£9,528

You will work chiefly on the operational systems and in particular on the criminal records application. You should have experience of large databases on fast response on-line systems. A knowledge of Tandem computers will be an advantage.

This post although on the County Treasurer's establishment is within the computer project branch which is currently based in Prestwich, Manchester. For an informal discussion 'phone Dr. Gudgin, Project Leader, on 061 798 9857 extension 55.

Application form, job description and further details available from the County Treasurer, Greater Manchester Council, County Hall, Piccadilly Gardens, Manchester, M60 3HR. Closing date 14th May, 1982

(9284)

UNIVERSITY COLLEGE LONDON
DEPARTMENT OF COMPUTER SCIENCE

Research Assistant

The department has a very active programme of research in the areas of computer communications, distributed systems and multi-media communication. Core communications within the department is provided by a number of Cambridge Rings and gateways provide access to wide area networks. A satellite ground station has been installed for high speed wide area network research. Applications are invited for the post of Research Assistant from those interested in distributed systems and network measurement with mainly software but some hardware experience. Salary in the range of £5285 to £8105 + £1035 London Allowance.

Applications should be sent to Professor P. T. Kirstein, Dept. of Computer Science, University College London, Gower Street, London WC1E 6BT.

(9341)

Lancashire County Council
BLACKPOOL & FYLDE COLLEGE
of Further & Higher Education
FACULTY OF ART & DESIGN

LECTURER II IN COMPUTER GRAPHICS

Ref: ADe/2/6

Applications are invited from artists/designers to further develop visual computing in the Faculty of Art and Design. This post has enormous potential for extending the visual applications of a well-established computer unit in technical illustrations, graphic design etc.

Further details and application form from: The Staffing Officer, Blackpool & Fylde College of Further and Higher Education, Ashfield Road, Bispham, Blackpool FY2 0HB, Lancs. to be returned by May 10, 1982.

(9369)

LONDON BOROUGH OF SUTTON
CARSHALTON COLLEGE OF FURTHER EDUCATION
NIGHTINGALE ROAD
CARSHALTON
SURREY SM5 2EJ
Tel. (01) 647 0021/7

Principal, L. P. Lawrence MSc., CChem., FRSC, FRSA

LECTURERS

Required for 1st SEPTEMBER, 1982

To teach

COMPUTER STUDIES AND DATA PROCESSING

SALARY: BURNHAM, plus £498 London Allowance

Application forms and further particulars are available from the Principal of the College to whom completed forms should be returned within 14 days of the appearance of this advertisement.

(9310)

USAssignments?

ASSEMBLERS & COBOL +CICS OR IMS $28,000-$40,000 p.a.

Your opportunity to join an exciting development project in the USA on a 12 month extendable assignment. **First-rate** overseas package. Enthusiastic environment. We need **analysts** and **programmers** with the above skills, and life assurance experience will be advantageous for some positions.

Phone Charmaine TODAY on **01-836 8411** or send your c.v. to Computer People International, VLI House, 68-69 St. Martin's Lane, London WC2N 4JS.

(9323)

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VAX BASIC	ANALYST/PROGRAMMERS
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PDP11 RSX11/M MACRO 11 RTL/2	ANALYST/PROGRAMMERS
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M6800/TI 9900 CIRCUIT DESIGNER	HARDWARE SPECIALIST
TANDEM T16 GUARDIAN COBOL	ANALYST/PROGRAMMERS
ICL VME/B COBOL and or IDMS/TPMS	ANALYST PROGRAMMERS
B6800 GEMCOS DMS11 COBOL	ANALYST/PROGRAMMERS
UNIVAC 1100 EXEC COBOL DMS TIP	PROGRAMMERS
HP 3000 IMAGE VIEW COBOL	ANALYST/PROGRAMMERS
IBM	
IBM DOS/VSE VSAM CICS COBOL	PROGRAMMERS
IBM OS CICS DL/1 COBOL	ANALYST PROGRAMMERS
IBM IMS All Levels	PROGRAMMERS TO ANALYSTS
IBM ADABAS +/− NATURAL PL/1 or COBOL	ANALYST/PROGRAMMERS
IBM OS PL/1 IMS DB/DC	ANALYST/PROGRAMMERS
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IBM MVS VTAM	SYSTEMS/PROGRAMMERS
IBM OS/DOS COBOL	PROGRAMMERS

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Fortran (Plus or Minus Scientific Background) both immediate & over the next 3 months. Programmers & Analyst Progs.

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(9360)

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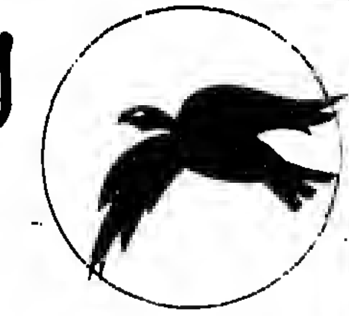
COMPUTER SERVICES



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Do you have in-depth experience of either STOCKBROKING, INVESTMENT or TELECOMS? If so this could be a chance for you to become a member of that elite group known as 'CONSULTANTS'. Our client needs people who are presentable, articulate and able to handle any situation. A university degree would be beneficial. Call us now.

Programmer Manager to £15,000

Are you a Project Leader who supervises staff and would like the opportunity to move into mainline management of a large well-established financial company? You should have five years' structural programming experience, good IBM software and hardware appreciation and working knowledge of PL1. Call us now for more information.

EDP Auditor to £16,000 + benefits

Are you currently a Senior Systems Analyst working on financial systems and looking for an interesting change in your career? Our client is in the process of expanding their Audit department and are seeking Analysts with a programming background to be trained in the Audit function. They are offering a very good salary + host of fringe benefits which includes a subsidised mortgage and the possibility of world-wide travel. For more information call now.

FOR MORE INFORMATION ON THESE AND MANY MORE VACANCIES PLEASE CONTACT LYNDA OR HARVEY ON 01-404 4339 or 242 0076.

(9287)

EMJAY COMPUTER SERVICES
Recruitment Consultants

Lonsdale Chambers, [illegible] London [illegible]
01-242 0076/01-404 4330

SWITZERLAND
MAINFRAME SOFTWARE PROGRAMMER

Our client is introducing a naw high-level languege for large scale Software productions. An additional progremmer is required to develop Softwera tools, dabugging eystems and utilities.

Successful cendidetes should heve a degree in Computar Scienca. 2 years' of I8M or UNIVAC, used modern high-laval lenguage and have bean involved with lerge Software development projects. Ref CW 10/1

SATELLITE COMMUNICATIONS [illegible]

A Software engineer is required by our client to join e small team developing this new and very exciting erea of communications. Candidatea ehould be in their mid to late 20s, e background degree in electronics or related subject, 2 years' experience of assembler plua e high-level lenguage and ideally a mixture of PDP11 and INTEL experience. Ref CW 10/2

SCIENTIFIC PROGRAMMERS LONDON

An expanding division of a well-known Softwere House hava Immediete openinge for the following projects:

Reel Time Simuletion, Proceaa Control, CAD, Commend + Control end Methemeticel Modelling. Succeasful candidatee should have ona or more of the following: Minimum 2 yeere' Softwere Programming, PDP11, RSX11M, VAX 780, ASSEMBLER, CORAL 66, RTL2 and FORTRAN. Ref. CW10/3

SWITZERLAND
GERMAN-SPEAKING SOFTWARE ENGINEERS

A major communicallons company require edditional German-speaking programmers, to develop new communicationa Sofiware. Candidates should heve a minimum of 2 years' Real Time experience in thia field. Ref. CW10/4

HARDWARE ENGINEER BEDFORDSHIRE

Satellite communicetions is our client'a epeciality. They currently wish to employ e Hardwere Enginear with a minimum of 3 years' experience in industry. A degree background is necessary plue aome involvement in Software Hardware experience of TTL and ECL design on micros would be ideal. Ref. CW10/5

ASHFORD SOFTWARE ENGINEERS

A compeny dedicated to Communications Syatems ie currently seaking engineers with a variety of the following:

- I8M/ICL PROTOCOLS
- DEC/RSX11/VAX
- CORAL
- NETWORKS
- EMULATORS
- X25
- DEFENCE
- INTEL 8086
- PROCESS CONTROL

Ref. CW10/6

FRANCE IBM SYSTEM PROGRAMMERS

One of Frence's lergeat Computer Services Companiee have openings for I8M Systems Programmere to work on a variety of our client's installations in e Systems engineering role.

Knowledge of French would be helpful, though a willingness to leern French is essential. Technicel experience must include e minimum of 2 yeers' MVS experience plue releted Software Tools. Ref. CW10/7

OPERATIONS RESEARCH PROGRAMMER/ANALYST

Our client's London-based operetional Reseerch/Scientific Systems group is currently seeking programmers with the following expertiee:

- FORTRAN
- MVS/TSO
- Min. 2 yrs' exp.
- IBM
- Honours Degree
- Financiel Planning

Ref. CW10/10

SWITZERLAND SENIOR SYSTEM ENGINEER
DATA/PACKAGE SWITCHING

An experienced Systeme Engineer is sought by our client to develop Dete Switching/Peckege Systema switching from design to implementetion.

Candidetes with the following axperience ahould apply:

- Degree, preferebly MSC
- Minimum 5 yeera in Reel Time
- Minimum 3 years in Telecom
- Direct experience of Deeign end Implementetion of High Speed, Dete Switching, involving CCITT recommendationa X21 and X25
- Experiance of Locel-Area end private networks, preferebly public synchronised data switching
- High level languagea i.e. ALGOL, CORAL, PASCAL or CHILL

The successful cendidetes muat be self-motivated eble to work on his or her own and adept to modern QA Techniquea.

This is a highly responaible poaition cerrying job aatisfaction end generoua remuneration for the right level of experience. Ref. CW 10/12

COMMAND & CONTROL LONDON

One of the largeat Internetional Softwara houaes with their heedquarters in London heve a requirement for Software Deaigners with a minimum of 1 year'e experience in Real Time Systems Deeign, candidetes should have e degree plus experience in one or more of the following:

- Defence Systeme
- Mescot
- PDP11
- CORAL
- VAX
- INTEL 8086

Ref. CW/11

All the above eppointments involve permanent poeitions and cerry a wide renge of selery end conditions dependent on locetion and experience. In the firat instance pleese send us e copy of your CV (elternativaly telephone for an epplication form) so we mey discuss your epplication in confidence with our client on your behalf.

DATAMATICS
RECRUITMENT SERVICES
01-399 9183
Datametics, Freepost, Surbiton, Surrey KT6 5BR

(6875)

[illegible]
[illegible] TELECOMMUNICATIONS

A London based consullency raquire experienced candidetes with a minimum of 4 years telecommunications experience, to work in an English speeking project in Itely or Spain.

Successful candidates will ba expected to become Teem Leaders after a fairly short pariod. Experlance with System 12, CHILL, ASSEMBLER, FORTRAN, EBM/TSO end networks would be ideal. CW 17/1

[illegible]
[illegible]

Our client epplies treditionel engineering disciplines to Software Design end Production. Thair applicetione include Weepone Guidence, Satellite Communicetions, Methematicel Modelling end Syetems Simulation. Cendidetes with competible experience to the above applicetions will g[illegible] e ramarkeble breadth end depth of knowledge, not just on e theoretical besle but through practicel experience, end close involvement in some of the moet edvanced Reel Time Syetems enywhere. CW 17/2

SCANDINAVIA
PRODUCT CO-ORDINATOR

Our client, e growing Computar Menufecturar, ie eeeking candidates to intar-fece between Merkating end Systeme Design.

Cendidetes should heve e technicel beckground including 2 years programming end must be eble to communicete in English both written and verbel, end heve e deaire to bacome involved with technicel writing.

Our client's business involvae the letest technology including Micro Proceesors, Deta Communications end Locel Networks. CW 17/3

DIGITAL TELEPHONY
SOFTWARE PROGRAMMERS
BERKSHIRE

Our client is acknowladgad to heva ona of the world's foremost Research end Development aeteblishmanls in the field of Telecommunications. They ere currently daveloping e Digitel Exchenge for office and factory usa.

They wieh to recruit Softwara Pereonnal who lika working in relatively smeil projecte, with e minimum of supervision end enjoy exposure to herdwere.

Cendidetes ehould heve a Degree, 2-4 yaars experience of Real Time Softwera Devalopmant preferably in Telecommunications. CW 17/4

SYSTEMS ENGINEERS
IN EUROPE [illegible]

One of the UK'a lergeat Syetams Consultency and Implementation organisation's offers an exceptionel combinetion of involvoment, experience end commitment in e number of spaclalised epplicetion areas.

Thay are looking for Syetam Engineers to undertake an initial essignment in Europe working et tha design stego of a Real Time project.

Cendidetes should heva:

- A minimum of 5 yaare exparience
- Spaclalised knowledge of Fire Control Systems
- Guidance eyateme
- Rader/Soner
- Navigation or EW Systams

CW 17/5

[illegible]
[illegible]

With the signing of enother large militery contract, our client is urgently seaking Systems Engineers to become Involvad in Tachnical Support. Ideally cendidetes will heve e Degree or an educetion from within the services. A number of cendidatae ere required to becoma involved in the following:

- Pra & Post Seles
- Seles Schedulee
- Proposal Writing
- Project Menegement
- Technicel Control
- Commission

Succeseful cendidetes ehould anjoy combining e Software Engineering background or militery epplications with technicel support end customer contact. CW 17/6

SWITZERLAND
QUALITY ASSURANCE

Ona of our clients requiree en experiencad Softwere Engineer with recent involvement in quelity eesurence.

The euccaesful cendidete ehould be experianced in writing end enforcing stenderds. Cendidetes ehould heve sufficient Germen to communicate within e Garmen Spaeking Project.

Thera is also en edditionel opaning within the eame project for a quality intagretion end testing poeition.

In this cese, cendidetas ehould heve extensive experience of Testing, Documentetion, Implamantetion, end Commiseioning of Customer Sites. CW 17/7

SYSTEMS CONSULTANTS
LONDON

Our client, e leeder of Internetionel Business Communicetions, requires edditionel Syetems Consultente to work from their London base with occesionel oversees treval possible.

Systame Consultente will be involvad in Syetam Design for a variety of induetriee using new tachnology involving video communications on Real Tima Systame.

Cendidetes should heve experience of DEC, VMS or RSX11 ability to design Softwere for a wide renge of terminals end networke. CW 17/8

DATAMATICS
RECRUITMENT SERVICES
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Detematics, Freepost, Surbiton, Surrey KT6 5BR

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Internationally Active Process Control Company

C£10K NEG HERTFORDSHIRE

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The ideol person will be educoted to degree standord with a detoiled knowledge of o mini computer reol time operoting system, prelerably RSX-11M. He will hove at least two years ossembler language expenence together with high level lenguoge programming (Coral or Fortran preferred)

This is a responsible and challenging position within a progressive organisation, and will offer the successful opplicant the opportunity ol exercising technical initiative ond orgonisotional skill in an inlormal and lriendly atmosphere

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01-629 7262 (24 hours).

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Strong IMS/DB Skills	DBA or Dasigner	Hollend
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Airline Systems exp.	Analysts & Progremmars	Hollend

UK

COBOL, IMS/DB	Programmar/Analyst	Homa Counties
COBOL, Univec 1100	Teem Leader, Programmers	Essex
Mark IV	Programmars	Home Countias
Burroughs 6800, COBOL	Anelyst/Programmers	Homa Counties
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On-Lina exp.	Systams Analyst	Homa Counties
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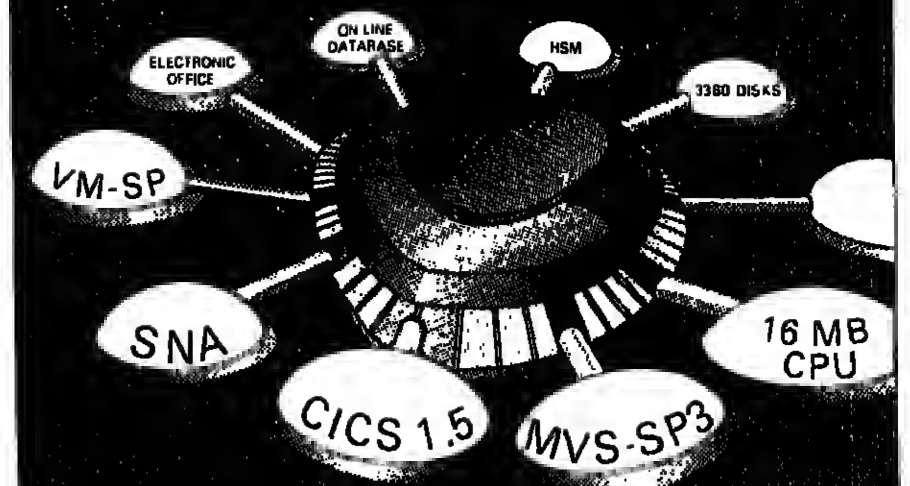
For more information please contact:

Resources Department
TANGENT COMPUTER SERVICES
102/106 South Street
Romford
Essex
Tel: Romford (0708) 750201
(24 hour answering service)

(9312)

SYSTEMS PROGRAMMERS



Consider what you **could be doing**

Our client is a world leader in advanced transportation technology with a global network of subsidiary and associate companies in over 30 countries. At the centre of this sophisticated organisation is one of the UK's largest and most impressive data-processing facilities.

At its London headquarters several multi-million pound on-line database projects are under way. These will maintain the company's predominant position into the next decade.

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In order to continue to create and maintain the systems software needed to achieve major development milestones, our client would like to hear from ambitious systems programmers who are capable of exploiting their current experience in an innovative and dynamic environment.

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Working closely with applications teams, the TP group will have a central role in the following developments:

- Major expansion of the network to 450 terminals
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The operating systems team will be involved in some major software upgrades. These will include:

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- Installaton of HSM in preparation for a Mass Storage System
- Software support for IBM 3380 disks

The company offers attractive salaries and the usual benefits associated with a large organisation.

If you would like to explore your limits in this prestigious environment, telephone James Attewell on 01-567 5501 or clip the coupon below.

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TECHNICAL SUPPORT MANAGER

BERKSHIRE C £15,000 + CAR

IBM OS or DOS ON-LINE IMS COBOL

A rapidly expanding computer services company has an interesting opportunity for a Technical Support Manager with broad ranging experience in the above areas.

It is a working manager's job, so apart from the staff management responsibility, you will be responsible for solving technical problems, dealing with customers, developing training courses, etc.

You are likely to be between 28-40, with a combination of applications programming and systems programming experience. You should also be experienced in project management and man management, and should have the personality to enable you to get on well with clients.

For further information, please contact MARK IRENS, ADVISING DIRECTOR quoting reference CW2904/1.

(9361)

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

SYSTEMS CONSULTANTS

SALARY PACKAGE CIRCA £13,000

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TO MAJOR FINANCIAL AND COMMERCIAL COMPANIES

These are largely state of the art pre-sales consultancy positions concerning comms/distributed intelligence networks for some of the largest companies in the UK.

Relevant technical or applications experience is of particular interest.

Contact BOB BOWER, ADVISING DIRECTOR quoting reference CW2904/2.

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LARGE COMMERCIAL SOFTWARE COMPANY

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(9351)

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Hutton
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IBM OPERATIONS

IBM OS SENIOR OPERATOR

CITY **£8500+**

This is an outstanding opportunity for a self-motivated DP professional to join an established but progressive installation. You should possess a minimum 2½ years' OS VS1 experience and be fully conversant with JCL and Utilities. The hardware comprises an IBM mainframe and a rapidly expanding communications network utilising PDP equipment. The successful candidate can expect total job satisfaction and an interesting long-term career path. A superior range of benefits is offered inc. sub. MORTGAGE & annual BONUS.

Ref: J1232

IBM MVS OPERATORS

HOME COUNTIES **£6800-£7800**

We currently require several Operators with 12 months' to two years' MVS experience for financial, manufacturing & service companies located in BEDFORDSHIRE, BUCKINGHAMSHIRE, HERTFORDSHIRE and KENT. Positions are available on IBM 4300 and IBM 3033 equipment, primarily running three-shift systems. For full details, please telephone quoting the reference number.

Ref: J/GEN

IBM DOS OPERATOR

W. LONDON **£7800+**

An international manufacturing concern has a requirement for an Operator with a minimum of 18 months' IBM 4300/DOS VSE experience; a knowledge of VM/CMS would be an advantage. Usual large company benefits apply

Ref: J1281

IBM DOS OPERATOR (NIGHTS)

E. LONDON/ESSEX **c £7000**

This commercial organisation is seeking an Operator with a minimum 18 months' experience to work a permanent NIGHT SHIFT. The installation comprises an IBM 4341 running VM/DOS VSE and CICS. Good benefits.

Ref: J1283

IBM DOS JUNIOR OPERATOR

BUCKS/BERKS **£5000+**

Our client, a prestigious manufacturing organisation is seeking to recruit a junior operator with approximately six months' DOS VS(E) experience. The company utilises an IBM 4300 running under DOS VSE, on a two-shift system. Excellent prospects for advancement.

Ref: J1282

STOP PRESS PDP/VAX

PDP OPS ANALYST **£11K+**

PDP 11; RSX11M preferable. Systems Programming exp. an advantage. EXC benefits. C. London.

Ref: J1251

VAX OPS SPECIALIST **£HIGH**

VAX/VMS/COMMS/Message-Switching. Outstanding benefits. London.

Ref: J1284

(9356)

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An important senior position – scope to build a team and become EDP Manager in 9-15 months

SENIOR ANALYST PROGRAMMER – BASELINE SOFTWARE

N.W. HOME COUNTY **£17,000-£28,000**

SALES AND MARKETING COMPANY – SUBSIDIARY OF ONE OF THE WORLD'S LARGEST ELECTRICAL GROUPS

We invite applications from candidates aged 28-35, who have acquired at least five years' practical data processing experience and at least two years' heading an effective data processing team utilising PERT/CPM or similar project management control methods. A working knowledge of IBM OS/MVS, JES2, JCL, TSO is necessary and programming in ANSI COBOL is essential. The successful candidate will be responsible to the Managing Director for running the existing D.E.C. installation in the UK, and following a familiarisation period in the USA on the Company's 4341/10 IBM configuration which is already installed, will then take over responsibility for the installation of the same hardware and adapted software in the UK within the next 12 months, and develop the necessary team. The Company is poised to double its turnover in the next three years, therefore the ability to lead the design analysis coding and testing of programmes and systems is key to the success of the appointment. Initial salary negotiable £17,000-£28,000 by way of high basic salary + bonus + car, contributory pension, free life assurance, free B.U.P.A.; assistance with removal expenses if necessary. Applications in strict confidence under reference SAPS 4098/CW, to the Managing Director:

CAMPBELL-JOHNSTON ASSOCIATES (MANAGEMENT RECRUITMENT CONSULTANTS) LIMITED, 35 NEW BROAD STREET, LONDON EC2P 1NH.
TELEPHONE 01-588 3588 or 01-588 3576. TELEX: 887374.

★Unless you are applying for the above position, please do not write to us.

(9385)

PL/1 ANALYST/PROGRAMMERS

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A rapidly expanding retail company is currently offering an excellent opportunity to two Analyst/Programmers to join an IBM team with PL/1 using CICS and DL/1 DATABASE.

Two/Three years' proven experience within either a commercial or financial environment and a desire to become part of a highly motivated team are the major qualities sought.

For further information please contact Amanda Barshall quoting Ref: 6069.

(9223)

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DATA PROCESSING MANAGER

We are a large multi site subsidiary of a major international group. We are currently converting our centralised computer facilities to a distributed system and require a Manager to head the department.

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The salary and fringe benefits reflect the importance of the position.

Please write giving brief career details to:

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DEPARTMENT OF EDUCATION
NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

PROGRAMMERS (2 POSTS) COMPUTER UNIT

Salary on Scale AP II/III £5376-£7371

Persons applying for these posts should be familiar with a modern interactive operating system and have experience in writing applications programs in a high level language. The preferred languages are COBOL, PASCAL, FORTRAN, BASIC and ASSEMBLER. Programming experience with Microcomputing Systems would be an advantage.

Applications from experienced programmers with a minimum educational attainment of HNC (or equivalent) are preferred but persons without experience may apply for appointment as trainees.

Application forms may be obtained from: The Administrative Officer (Personnel), Napier College of Commerce and Technology, Colinton Road, Edinburgh EH10 5DT.

Closing date for application is 14 May 1982.

WALES & WEST COUNTRY JOB OPPORTUNITIES – 1

Government and local authorities are recognising the need to create jobs in Celtic Britain . . . Chris Youett reports

Moving to a depressed area need not be a risky business

MOVING in the middle of a recession, or to a depressed area could be described as chancy. But many have changed their jobs or the location of their businesses to greener pastures and have made a success of it.

The economics of Wales and the West Country have traditionally been based on mining, heavy industry and agriculture. The first two have been seriously declined since the last war, but are still operational. Of course, agriculture will always be needed and is the UK's largest and most efficient industry.

Both government and local authorities have recognised there is a need to create new job opportunities in this part of Celtic Britain and there are many forms of aid available.

> Ever since the fuss over where the Inmos factory was to be sited, this area has come into the DP limelight

Ever since the fuss over where the Inmos factory was to be sited – allegedly because of the Californian-style weather in the West Country – Celtic Britain has come into the DP limelight.

Opportunities range from major factories such as Control Data at Brynmawr and British Steel at Port Talbot to small and medium-sized firms such as Data Type Terminals:

Data Type, which was formed in 1977, moved to Cwmbran's Springvale Estate in the summer of 1980. It is situated between Newport and Pontypool.

Chairman Gerry Tuffs was quite clear about the reasons for setting up his business there: "The Cwmbran Development Corporation has done such a marvellous job. In total, the grants did not play a significant part in my decision.

"However, the two years' rent-free premises are significant. Also customers in Wales are likely to change their supplier on prices alone and are more loyal," he added.

Data Type markets the Infoscribe matrix printer, the Televideo terminal to which the firm has added its own graphics board, the Florida Data Corp's 600 chips matrix printer, and its own DEC LSI-11 replacement, the Atlas minicomputer.

The firm currently operates from 6,500 square feet of premises and will shortly be moving into a 10,000 square foot purpose-built factory which also includes a 17th century farmhouse.

At the other end of the scale is British Steel's Port Talbot works which has one of the most efficiently run IBM 303X installations in the UK.

When the McGregor Plan for the rationalisation of steel production was announced, it was decided that strip production would have regional offices instead of a central one, and would also have the same quality of DP service.

The installation was given the job of producing order entry and sales statistics systems so that the strip mill foremen could decide how much steel to produce each week.

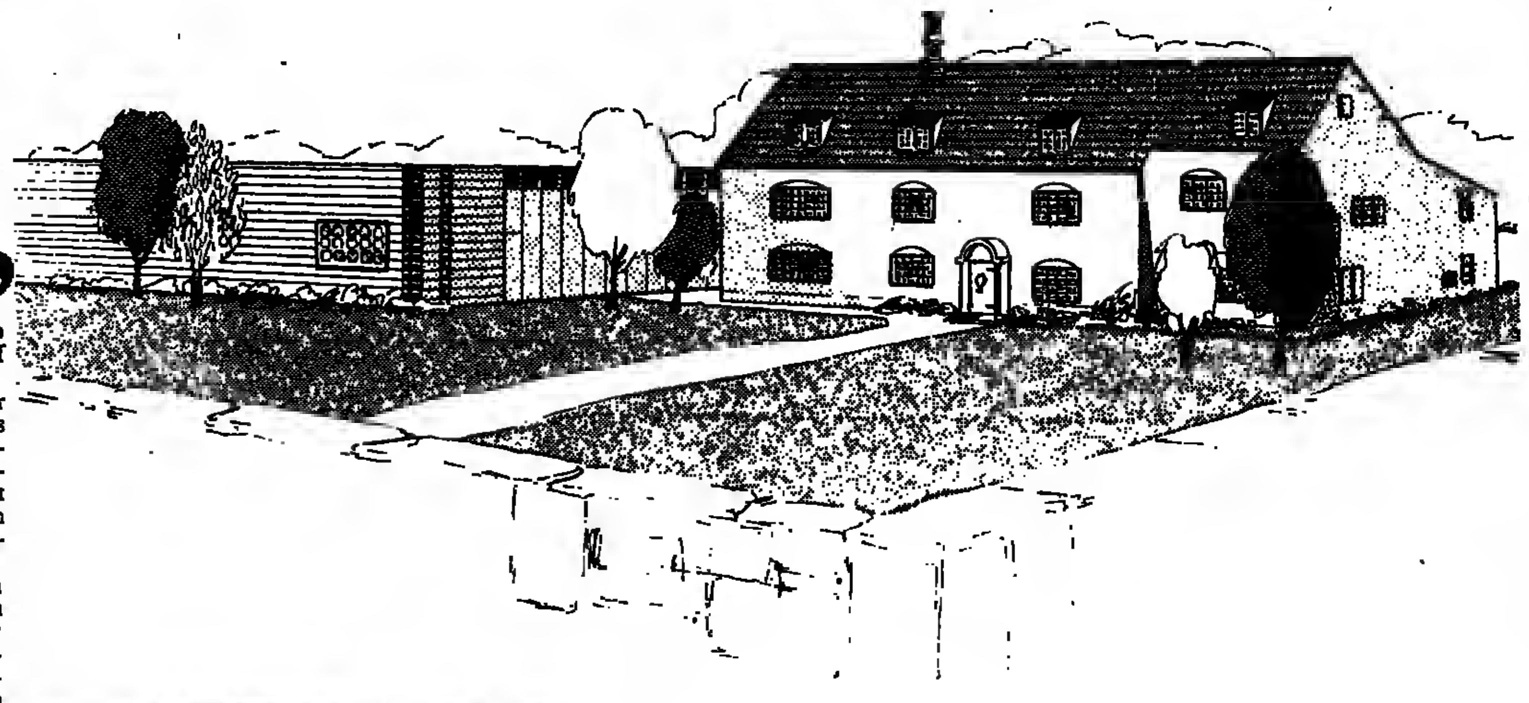
Both systems had to be user-friendly. There are over 40 terminals on the systems and to cut the applications back-log, the management decided to consider installing programmer productivity aids.

They picked Cincom's Mantis, which was the first installation on the non-procedural language in Europe. Mantis also allows the programmer to debug the software online at any time during development.

This allowed the system to be written by two graduates who had only recently left college in a quarter of the time that it would have taken had traditional programming methods been used.

To give an idea of the complexity of the eight-Mbyte IBM 3031, the two systems have to compete with six teleprocessing applications. They are a test version of Mantis; CICS Piscs, a local stores management system; CICS Interperse, which is used by the personnel department; TSO; APG CICS, which is a stores system and Port Talbot's own TP system, Staca.

> Customers in Wales are less likely to change their supplier on prices alone, and are more loyal



Data Type's new Cwmbran premises at Springvale Estate.

The West Country

Your Career Path, real not imagined

Despite the economic gloom, many progressive employers are expanding.

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DIRECTORATE OF FINANCE

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Salary range £7371-£7875

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Applications are invited for the above post from suitably qualified persons who have had at least two years experience on a Mini Computer installation using high level language. The post holder will be responsible to the Computer Manager/Programmer for the development and maintenance of allotted computer programme systems and will provide technical support and supervision of the computer operation.

Application form and further details from the Personnel Officer, NDDC, Civic Centre, Barnstaple, North Devon.
Closing date 14th May 1982.

(9343)

BOX NUMBERS

Box number replies should be addressed to:

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Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

BRISTOL AND WESTON HEALTH AUTHORITY

PROGRAMMER ANALYST

An experienced Programmer Analyst is required by the Bristol & Weston Health Authority, Computer Department, based in the Bristol Royal Infirmary. The Department is small and enthusiastic, and is developing on-line 'Patient Administration' and 'Clinical Laboratory' systems in MUMPS. The computer is a PDP 11 running MUMPS. Previous experience with MUMPS is not essential as familiarisation training will be given. Applicants should demonstrate initiative and have the ability to communicate computer applications to specialists in other fields. They must be able to work with minimum supervision. Salary scale £6,884-£8,147 per annum (new entrants to NHS normally commence on the minimum of the scale). Application form and job description available from the District Personnel Department, Bristol & Weston Health Authority, District Headquarters, 18 Marlborough Street, Bristol BS1 3HP. Closing date: 10th May, 1982.

(9333)

SOUTH WEST UNIVERSITIES REGIONAL COMPUTER CENTRE
University of Bath

SMALL BUSINESS MICROSYSTEM SUPPORT

The SWURCC microprocessor software unit is seeking additional staff to extend its current activities to the support of small business microsystems. At present support is concentrated on UCSD Pascal and Unix and whilst this will remain the main thrust, other popular operating systems, languages and relevant packages will need to be covered.

The extended services will be offered through the NCC's Federation of Microsystems Centres and will be funded for two years in the first instance. Candidates with suitable experience are invited to write for further details and application form to the Personnel Officer, University of Bath, Claverton Down, Bath BA2 7AY. Appointments will be on a salary scale from £6,070 to £10,575 (under review). Closing date 7 May 1982. Ref. No. 82/39.

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CARMARTHEN TECHNICAL & AGRICULTURAL COLLEGE
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LECTURER II (Scale £6,462-£10,431 p.a.)

Applications are invited for the post of Lecturer II in SYSTEMS ANALYSIS/COMPUTING to teach the subject to a range of classes. The person appointed will be involved primarily in the development of computing/systems analysis courses for employees of a major international company, but will also be expected to assist with staff development within the college and to advise on the use of computing within a range of disciplines

Qualifications: A wide experience of computing in industry and commerce is expected together with an appropriate academic or professional qualification.

Application forms and further details obtainable from the Principal, Carmarthen Technical & Agricultural College, Carmarthen, Dyfed SA31 2NH. Tel: Carmarthen (0267) 4151. Closing date for receipt of applications 18th MAY, 1982.

W. J. PHILLIPS, Director of Education, Education Department, Pibwrlwyd, Carmarthen, Dyfed.

(9349)

WEYMOUTH AND PORTLAND BOROUGH COUNCIL

COBOL PROGRAMMER

This vacancy offers the opportunity to gain experience with a small but progressive authority which has its own ICL 2904/50 computer.

Applicants must have completed an approved COBOL training course and possess a minimum of five GCE passes including two at 'A' level and including English and Mathematics. A minimum of three years' experience of COBOL is required including one year on-line applications programming.

Salary negotiable within the range £6,601-£7,137. Weymouth is a popular holiday resort situated centrally on the Dorset coast and noted for its safe beaches and as a sailing centre. Access to the Continent is available via a car ferry to Cherbourg and the Channel Islands.

Generous relocation expenses including 100% removal fees, £600 legal fees and £20 per week lodging allowance are available in approved cases. Permanent housing accommodation may be available.

Application forms are available from the Personnel Section, Municipal Offices, North Quay, Weymouth DT4 8TA or telephone Weymouth 0305 78101, ext. 90. Closing date for receipt of completed application forms: Friday, 7th May, 1982.

(9311)

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CW29/4 (7001)

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(9303)

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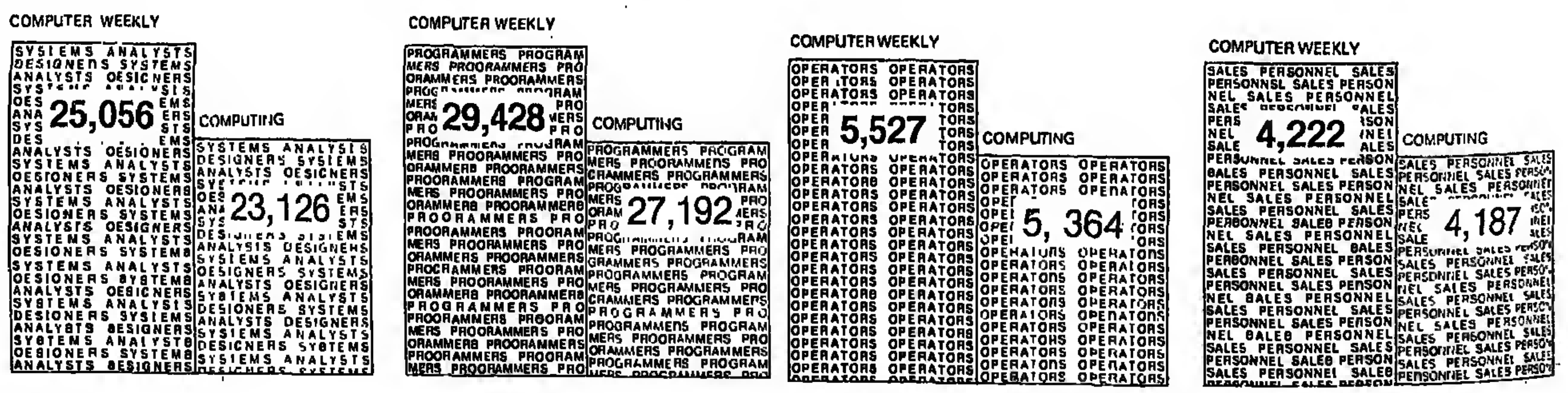

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SENIOR PROGRAMMER PL1/Database/CICS	**to £15K** Croydon/Beds./Berks
SENIOR SYSTEMS ANALYSTS PDP1170/RSTS/DIBOL/BASIC	**to £13K** London
SALES EXECUTIVES Packages/Micros/Peripherals/Turnkey	**to £25K** N. Berks/Herts/Oxford
SENIOR PROJECT LEADERS IBM/ICL, Manufacturing	**to £12K** Wales/Surrey/Bucks
PROGRAMMERS & ANALYSTS Prime/DEC/RSTS	**to £15K** North Berks
PRE/POST SALES SUPPORT Minis/Realtime/Cad/Cam	**to £12K** Berks/Middx/London
SENIOR SYSTEMS PROGRAMMERS DOS/CICS/Teleprocessing	**to £13K** Midlands/London/Home Counties
SENIOR PROGRAMMERS ICL or IBM	**to £10K** Beds./Warwickshire
FIELD SERVICE ENGINEERS Mainframe/Minis/Peripherals	**to £13K** Nationwide
SALES & MARKETING MANAGER Video Terminals	**to £20K+** Essex
ANALYST PROGRAMMERS ICL 2956/Database/Fortran/Pascal	**to £12K** London
SENIOR SYSTEM ANALYST IBM/Univac/Statistics	**to £12K** Bucks/Berks
PROGRAMMERS Cobol/Basic/Minis	**-to £9K** Herts/Manchester/Midlands
CONSULTANTS Banking/Insurance/Commodity Broking	**to £20K** Surrey/Middlesex/London
SALES EXECUTIVES Video Terminal/Cad Cam Systems	**to £16K +** North West England/London/Berks
SOFTWARE ENGINEER Telecoms/Military/ATE	**to £11K** Home Counties
PROGRAMMERS Assembler/Cobol/IBM 370/DOS/VS/MVS	**to £13K** Surrey/London
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(9325)

Targa

ANALYSTS & ANALYST/PROG

CITY **To £12,000 + MORTGAGE**

Our client, a leading Insurance company, is seeking Systems Analysts and an Analyst/Programmer to enhance its expanding Data Processing group. A financial applications background is required for all positions, insurance exposure being advantageous. The requirements are for a Senior Analyst with around five years' design experience and Analysts with a minimum of one year spent in formal Analysis. The Analyst/Programmer will probably have had two years or so in a similar position working in an ICL COBOL environment. All positions carry an excellent benefits package including subsidised mortgage and bonus scheme. Ref. C3S95

CITY RECRUITMENT CONSULTANTS a. £15,000

T.C.R. are seeking to expanding their range of Advertising and Recruitment Services to the Data Processing sector by the addition of two further Consultants. You should be able to demonstrate a good track record in either a similar position or alternatively have had experience within the computer services or systems and programming environment. Probably aged between 25 and 35 the successful applicants will have a good level of education and possess the kind of inter-personal skills necessary for these challenging and rewarding positions. A very high level of income is envisaged for those with the ambition and determination to succeed, the remuneration package consisting of basic salary, negotiable guarantee, health care plan and company car.

ANALYST PROGRAMMERS

CITY **c £10,000**

A leading City-based Insurance company need to expand their support team. A wide variety of applications are involved and the opportunity for user contact through to implementation is a feature of these positions. Candidates with a good grounding in COBOL or PL/1 are required and a knowledge of CICS/DL1 useful but not essential. Excellent opportunities for career progression combined with a benefits package commensurate with a major company. Ref. R3521

SENIOR PROGRAMMERS

ESSEX **To £10,000**

An Essex-based company has a requirement for experienced PROGRAMMERS to work in a busy but interesting ICL environment. Our clients handle a large volume of the transactions for the London Insurance market therefore an insurance or financial applications background *would be an* advantage. A minimum of *three years'* COBOL experience, preferably using ICL equipment is required, allied with the capability to supervise and motivate other programmers. Further programming vacancies occur at other levels and applications are invited from those with slightly less experience. All positions attract an excellent company benefits package. Ref. C3649

PROGRAMMERS

SURREY **To £10,000 + BENEFITS**

Our Clients are a prestigious financial organisation based in Surrey. They seek ambitious young PL/1 programmers to help develop and support a range of applications. One-three years' experience in a large scale IBM environment could provide the opportunity to join a leading company offering wide scope for personal advancement. An attractive range of benefits including MORTGAGE facility complements the basic salary. Ref. R3S77

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10 Lines

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(9352)

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SENIOR CONSULTANTS	(May, June, July starts)
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(9314)

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- ★ London and Home Counties
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Seek to appoint Engineers with experience in mainframes, Minis, Micro s, W.P s or Peripherals.

If you feel you have the necessary background or simply wish to discuss your future career within the Computer Industry contact:

Chris Moor or Steve Kingswell
0203-52171

Sentram Technical Services
3rd Floor, Coventry Point, Market Way, Coventry CV1 1EA

(9349)

Technical Service Engineer-Europe

computer peripherals progressive salary+car

Among its many fields of interest, 3M markets professional data recording equipment. We are now seeking a Technical Service Engineer to provide technical support for our sales personnel and customers throughout Europe.

We are interested to hear from electronics engineers qualified to at least HNC level who have gained wide-ranging practical experience in advanced digital technology.

Working from our base on the west side of London, you will spend a considerable proportion of your time on field visits to customers' premises in Europe, so personal mobility is essential. Full product training will, of course, be provided.

The impressive remuneration package consists of competitive starting salary plus company car and an extensive range of large-company benefits.

Write with personal and career details to: K. B. Jackson, Employee Relations Manager, 3M United Kingdom PLC, 3M House, PO Box 1, Bracknell, Berks. RG12 1JU.

(9313)

3M

All Hands on DEC!

SAUDI ARABIA

PROGRAMMER/ ANALYSTS

High tax-free earnings

Our client is a young dynamic organisation based in Riyadh – one of the fastest growing cities in the Middle East. They are the main DEC agency in Riyadh marketing hardware systems, providing standard and bespoke software packages and running a time sharing bureau.

This progressive environment has produced a number of new opportunities for Programmer Analysts to enhance their careers and accumulate the kind of high earnings that you can only dream about in the UK.

To meet this challenge you should have a good general knowledge of DEC hardware, be fluent in BASIC + 2, FORTRAN and maybe MACRO. Software experience to include RSTS E, TOPS 20, MUMPS, RT 11 or RSX.

Your background should have been in commercial systems and you should enjoy customer contact as a lot of the work is with first-time users. If you know Networking Systems or Database, it's a plus and you must be self-reliant to enjoy the challenge.

These are 2-year renewable bachelor status contracts offering 50 days' holiday, 2 air flights, excellent free housing, car and medical scheme.

Our client will be in London in early May to carry out final interviews so please contact us IMMEDIATELY. Phone now (24 hour answering service) for more information or an application form. Quote reference CW 110-2D.

CAPP ASSOCIATES
01-686 9693

Capp House, 96a South End,
Croydon CR9 3SD
International & UK Recruitment Consultants

CROSSWORD

Solution to Prize Crossword No 26

NAN Scott, head of user services at the University of Aberdeen's Computer Centre, won the £10 prize for our April Crossword. Runners-up were Leslie Crawford, an analyst/programmer with the North-Eastern Electricity Board in Jarrow and Tony Knott, regional personnel manager at London-based Computer Analysists and Programmers UK. They each receive £5.

COMPUTER ADP STAFF SAUDI ARABIA

Our Associates are a major commercial group with large construction, maintenance and business interests. They urgently require qualified personnel in the following categories to augment their existing specialist team. Successful candidates will be offered an excellent contract package on a one year (renewable) bachelor status basis, with completion bonus, paid UK leave, free accommodation, medical care etc.

PROJECT LEADER/SYSTEM ANALYST

Must have accounting/computer science qual. and min 10 years DP exp as programmer/system analyst. Resp small and large projects, feasibility studies, system analysis. Act as DP liaison with user depts. Prepares project status reports etc (DA50)

SYSTEM ANALYST

Must have accounting/computer science qual. and min 5 yrs DP exp, 3 as Programmer or above. Resp analysis business problems, specification of programming, user liaison, coding programs in source language to meet analysis phase spec. Prepares written instr. on program op. etc. (DA52)

DATA BASE ADMINISTRATOR

Must have business computer science qual. and min 6 yrs exp in business orientated computer applications incl. programming, data system analysis in design of medium/large scale business systems with at least 2 yrs data base admin. exp. Resp assisting users, system analysts and programmers in determining app. data requirements and applying effective techniques in use of data base. (DA51)

ANALYST PROGRAMMER

Must have computer science/accounts qual. and min 3 yrs DP exp, 2 at least as senior prog. Resp business problem analysis, producing detailed specs from which programming may commence. Coding of computer progs in source language to spec. provided by System Analyst. Flow Charts. (DA53)

TECHNICAL WRITER

Qualified in computer science, bus. admin or journalism. 5 yrs DP exp., 2 yrs at least as Technical Writer. Resp analysis documentation needs of EDP and user depts. Production specific documentation in forms such as user manuals, run manuals, op. instr., system specs. Maintain ADP library. (DA54)

IF YOU HAVE THE QUALIFICATIONS / EXPERIENCE SPECIFIED, PLEASE SEND FULLY DETAILED C.V. QUOTING REF NO. AND COPIES OF QUALIFICATIONS, REFERENCES, ANTICIPATED SALARY AND RECENT PHOTOGRAPH, TO:–

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If your enthusiasm is dwindling and your talent stagnating due to indecision, inadequate products, unreasonable quotas, lack of prospects or simply the absence of a stimulating selling environment, then this job is a real opportunity for putting the control of your career back into your own hands.

The qualifications are simple but demanding. Applicants must be able to demonstrate a record of at least two years sales success in either computer hardware or services. The potential rewards are high but achievable, with on-target earnings of

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Please supply complete career details to Peter Hubble – London 01-734 9776 or Roger Pyatt – Manchester 061-445 0646 quoting reference HSF/204.

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Consumer Electronics
Computer Operations Specialist (ICL System 10)

c£9,000 p.a.

With a turnover of £20m + CGS Limited is a subsidiary of a major retail group operating in the UK Domestic Appliance, Consumer Electronics and Micro Computer Markets. Trading as MASTERCARE with 1,500 staff and more than 30 sites, the Company continues rapid expansion in trade and computer related merchandise in which it has unrivalled national cover and expertise. As part of this expansion the Company has recently entered the electronic components distributor market and as a result intends to strengthen the management of its Components Division based on the outskirts of High Wycombe, by making the above appointment.

The successful applicant will head a young team of committed operators and will be responsible for providing the support system essential to the efficient running of a national distributor of electronic components and spares. Considerable expertise of "on-line" work with an ICL System 10 is desirable. Preferred age range 25-35 years.

The job holder while liaising closely with the Company's Information Processing Manager will have a unique opportunity to contribute significantly to the Company's overall profitability through this new business venture.

In addition to benefits normally associated with a company of this size and nature, there are discounts on goods from a national electrical retailer and a Company BUPA scheme is available. The position is open to both male and female applicants.

Please send detailed C.V. to:

R W Sullivan
Personnel & Training Manager
CGS Limited 653 London Road
High Wycombe, Bucks. HP11 1EH.

C G S Limited

ANALYST PROGRAMMERS

£7-8K

STAR Computers Ltd, is a leading minicomputer systems house with a constantly innovative hardware range and a growing catalogue of interactive software packages written in BASIC with the aid of sophisticated program development tools.

Our further expansion plan involves the widening of our range of packages for the professions and extending the range of options and individual solutions within our package for commercial users.

We invite applications for Analyst/Programmers with experience in inter-active system design and programming, ideally in BASIC with knowledge of one or more of the following applications: Trust Management, Trust Accounting, Share Registration, Solicitor's Accounting, Stock Control, General Accounting.

Please write, enclosing c.v., to

Ray Walters, Software Department Manager, STAR Computer Group, 64 Great Eastern Street, London E.C.2.

Sales and Sales Support
Data Communications

The Data Communications Division of IAL has built an enviable reputation for the design and installation of advanced telecommunications systems for worldwide markets. Considerable business expansion demands that we strengthen our sales team with the following men or women.

Sales Support Executives
c.£11,500 + car

To work within the Data Communications Sales Department and provide direct field and office support to our team of Salesmen in the U.K. This will include evaluation of Tender Documents, formulation of proposal and quotation documents, customer visits, presentations and training.

These are particularly demanding roles requiring familiarity with data communications products and their applications, so candidates should ideally have experience in the teleprocessing aspects of computers, terminals or telecommunications equipment. Since much of the work will involve close liaison with engineers, an engineering background in design or field support would be particularly useful but is less important than the blend of personality and business acumen which is so important in a sales environment. Ref. K215/01.

Area Sales Executives
c.£10,500 + car

To be responsible for the development of sales of our Data Communications systems and products, including network management systems, modems, multiplexers, branching panels etc., for key areas in London and Manchester.

Applicants, who should be resident in the London or Greater Manchester areas, should be able to demonstrate a proven track record in selling capital equipment in the electronics, telecommunications or computer hardware fields. Ref. K215/02.

In addition to attractive starting salaries and excellent conditions of service which include a car, five weeks annual holiday, pension and life assurance schemes, we are offering assistance with relocation expenses where necessary when we move to our new purpose built facility at Basingstoke later this year.

If you feel you can match the challenge of our requirements telephone Sally Cole on 01-574 5151 or send your c.v. to her at IAL, Aeradio House, Hayes Road, Southall, Middlesex, UB2 5NJ, quoting the appropriate reference.

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$30,000-$40,000 p.a.

- Technical Planner with DB/DC, X25, X36 experience to evaluate hardware and software packages.
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These 12 month assignments are located in San Diego, Southern California close to the Pacific seaboard. Phone Charmaine TODAY on 01-836 8411 or send your c.v. to Computer People International, VLI House, 68-69 St. Martin's Lane, London WC2N 4JS.

(8322)

...COMPUTER PEOPLE INTERNATIONAL.

Information Technology Centre Manager

required for Grand Metropolitan Community Services Limited to organise and run an Information Technology Centre based at Southall, Middlesex, with the aim of giving young people a year's educational experience in the future uses of technology.

The Manager will be responsible for setting up and opening the Centre, and ensuring that a training programme is designed and operated to meet the needs of the trainees, and actively participate in the day-to-day teaching and management of the ITeC.

Experience in the educational field and micro-computer field is necessary, and salary is Circa £12,500 per annum.

Initial contract for one year.

Applications in writing, giving details of previous experience and a telephone number, should be made to T. R. E. Mann, Grand Metropolitan Community Services Limited, 1 Gloucester Mansions, Gloucester Place, Brighton, Sussex BN1 4BT.

(8330

THE POLYTECHNIC, HUDDERSFIELD
Department of Computer Studies and Mathematics

RESEARCH ASSISTANT
Salary: Researcher 'A' Scale £4388-£6141

Applications are invited for a three-year appointment, supported by SERC, to work on a project concerned with the use of dialogue for the man-machine interface. Candidates should have a good honours degree in computing and preference will be given to those with experience of UNIX and PASCAL.

Further details and application forms, which should be returned by 14 May, 1982, are available from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH. Tel: Huddersfield (0484) 22288, ext. 2223.

(9290)

TAMESIDE COLLEGE OF TECHNOLOGY

The following posts are available from 1st September, 1982:

Department of Business Studies and Management

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To teach Data and Information processing on a range of Business Studies courses. Relevant business or industrial experience is essential, preferably in the financial sector. Knowledge of programming for commercial purposes is desirable.

COMPUTER STUDIES UNIT

LECTURER I/II — COMPUTING

To contribute to the work of the Computer Studies Unit which includes threshold and BEC/TEC National Certificate Courses as well as a wide range of part time courses and servicing work for all departments of the College. Experience in one or more of the following areas would be an advantage:

Programming in BASIC, Programming in COBOL, Computer Operations, Micro Processors, Low level languages, Computer assisted learning.

Application forms and further particulars available from The Principal, Tameside College of Technology, Beaufort Road, Ashton-under-Lyne, OL6 6NX, which should be returned no later than 14th May, 1982. Ref: TE2523/CW.

(9324)

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For more information please contact, in confidence, **GEOFF MELLOR on 0208 288181.**

(8298)

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NEW COMPUTER DEVELOPMENT
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NEWCASTLE UPON TYNE

The authority is developing a computer pricing and information system capable of processing and analysing 320 million National Health Service prescriptions received each year from more than 10,000 contractors. Currently 2,000 staff are employed to process this work manually in nine centres situated in northern England.

The existing computer division is engaged in procuring 1,500 data entry terminals, mainframes to process the workload and the implementation of a pricing and information system throughout its nine centres.

The first delivery of hardware has recently been received which includes a Honeywell level 64/DPS – 4 computer. Using COBOL and 4 Redifusion R1600/70 data entry systems.

We require

SYSTEMS DESIGNER/PROGRAMMER
(IMPLEMENTATION – DATA ENTRY)

Ideally candidates should have at least two years COBOL programming experience or experience of writing programmes for Rediffusion Data Entry equipment. Systems design or implementation experience would be advantageous.

Salary scale: £6,684-£8,147 p.a.

Subject to certain conditions and previous service an allowance of £250 p.a. can be paid on all points of the scale. Post based in Newcastle-upon-Tyne, but some travelling may be required.

Application forms and further details are available from Personnel Officer, Prescription Pricing Authority, Bridge House, 152 Pilgrim Street, Newcastle-upon-Tyne NE1 6SN. Closing date 17 May 1982.

(9338)

IDMS Consultant

Wanted urgently by major Middle East government Ministry for logical design and set-up of an IDMS database, involving financial and statistical systems, using Siemens computer hardware.

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Initially on a 4 months' contract with prospect of an extension after first leave. This bachelor status post will be highly paid, with a very generous benefits package, including furnished accommodation, catering and own car, and presents an exceptional opportunity to join an expanding and exciting project using the latest technology.

Please *write* giving FULL career details to: The Personnel Manager, Gray Mackenzie & Company Limited, 40 St. Mary Axe, London, EC3A 8EU.

(9268)

Gray Mackenzie

SALES BIT

Quality of Management — 7

Any decision is better than none!

THE Manager was asked "Do you have trouble in making decisions?" to which he replied "Well, yes and no!" Most readers will have heard that old joke before, but I wonder how many would accept that the point it makes so succinctly could possibly apply to them. None, I suppose, but the reality is that a large proportion of managers are bad decision-makers.

Bad decisions fall into two categories; wrong decisions and non decisions, and the latter are by far the worst. There is nothing quite so bad as an indecisive manager, for this inability to make a commitment not only reduces the credibility of the executive concerned but also destroys the confidence of those around him.

One might assume that such a lack of confidence could emanate from the pressures of the hierarchical pyramid, but I believe this is seldom the case. The number of managers who are indecisive owing to fear of their superiors is very few.

A more likely reason is fear of personal failure. No one likes to be wrong, for pride is a force that always hopes for perfection. Successful managers only deal in reality and objectivity and, this being the case, accept as an unfortunate but indisputable truth that the successful manager is one who is right more often than he is wrong.

In other words, par for the decision-maker's course is 51% correct.

The old adage that "Any decision is better than none" may sound rather naive, but in fact it is entirely true. Actions can only be put into effect when a decision has been made. Once under way new factors are usually revealed which may necessitate modifications, or even counter-measures; but eventually these adjustments lead to the optimum solution — the best action allowable under the circumstances.

The procrastinator never gets to this point. OK, sometimes doing nothing can often turn out to be the best action to take, but that is a decision in itself.

Dithering is something else, it assembles the runners at the starting post but the race is never cancelled or commenced; the participants are left in a frustrating limbo where they cannot get on with the job nor can they continue with anything else. This is a costly situation in both financial and emotional terms.

Having said that, I hasten to point out that the manager who consistently makes rapid decisions off the cuff is almost as bad as the procrastinator.

Decision-making is not normally a reactive process, it is one where all available factors are considered, and having established that sufficient information exists for a commitment to be made, positive action is taken.

The most important facet of the decision-making process is definition of the problem. It is so easy to go off at half cock because of wrong assumptions.

More often than not the very process of creating a comprehensive analysis of the situation automatically generates the best available solution. A problem well defined is a problem half solved!

One important rider to the process of problem definition; do not limit the investigation to the problem (or indeed opportunity!) itself; it is essential to have complete understanding of the factors that brought it about in the first place.

Having carried out a detailed analysis of the situation, the next step is to decide upon the alternative solutions that are available.

Once the best action has been identified, subsequent action must be rapid; the main task is to communicate in order to gain the support of both peers and subordinates for the actions that are implied are the implementation of the decision.

Once this is achieved the strategy must be put into effect quickly and positively; no hesitation, no further evaluation.

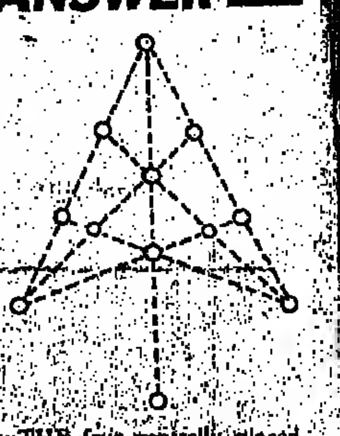
The process does not end there; the effects of actions taken must be monitored closely right from the outset and modifications make in accordance with subsequent events. With a bit of luck you will get it right in the end; if you don't, that's where you're likely to get your boss's boot!

Alan Williams

COURSES

RESEARCH and development managers and project and section leaders in applied research are the target for the Fulmer Research Institute's seminar Project Planning for Research Managers. The course, which will be held on May 6-7 and 24-25, gives tuition in planning and design techniques, and discusses delegates' own projects. The course is based on the RDP system of planning which is a notation using a generalisation of computer programming flow charts and critical path networks. Delegates will be given the opportunity of seeing some of the research being carried out at the Fulmer Institute. The course will be held at Fulmer Grange, near Slough, and costs £250 + VAT. Fee includes accommodation and meals. Details on Fulmer (02816) 2181.

PUZZLE ANSWER



THE four centrally placed discs are the ones that have been moved.